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This plan outlines the proposed development of the University of Missouri for the next 10 years. The discussion includes the general organization of the 4-campus University, its responsibilities, the roles to be filled by the individual campuses, and an assessment of the needs of the various disciplines and divisions as the University responds to constantly increasing demands. It aims primarily to provide guidelines within which each of the campuses and the University-wide administration can develop specific programs including detailed costing. This report represents the first step in an ongoing planning process that involves students, faculty and administrators. Each campus developed its own plan by the committee system. In addition, University-wide committees were appointed in each discipline to consider statewide problems and formulate plans in their particular areas. Reports from all of these participants were then condensed into a single document which was extensively reviewed by all contributors. Some of the major recommendations are: that the capabilities of the 4 campuses be fully integrated and coordinated so that the system can function as a single university; that the principal goals be the educational, social and cultural growth of the individual student at all academic levels; that the education offered be relevant to the times and to the state of Missouri; and that all qualified state residents have the opportunity to attend the University. (JS)

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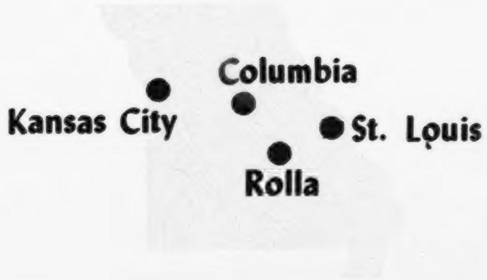
LONG RANGE PLANNING

UNIVERSITY
OF
MISSOURI



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NOVEMBER 1968

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Columbia
Kansas City
Rolla
St. Louis

LONG RANGE PLANNING

UNIVERSITY
OF
MISSOURI

NOVEMBER 1968

LONG RANGE PLANNING COMMITTEE

foreword

This is a plan outlining the proposed development of the University of Missouri through the next 10 years. The discussion includes the general organization of the four-campus University, its responsibilities as the only state supported university-type educational institution in Missouri, the roles to be filled by the individual campuses, and an assessment of the needs of the various disciplines and divisions as the University responds to constantly increasing demands. The primary objective is to provide guidelines within which each of the four campuses and the University-wide administration can develop specific programs including detailed costing.

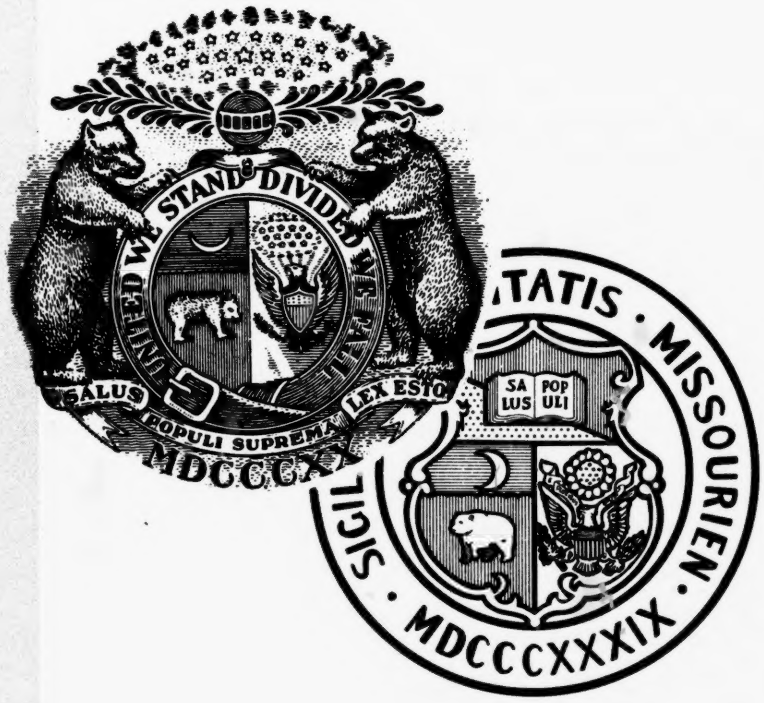
This plan constitutes the first step in a continuing process of thinking and planning that involves the faculty, the students, and the administration. The principal responsibility of the University is to provide the best possible university-type education to students at all levels and in all walks of life. The planners will constantly keep this principle in mind.

The material presented here has been under consideration for approximately two years. General guidelines for its development have been provided by a committee consisting of the four Chancellors and chaired by the Vice President for Research and Graduate Studies. Each campus developed its own plan by the committee system. In addition, University-wide committees were appointed in each discipline to consider statewide problems and to formulate plans in their particular areas. Reports from all of these participants were then condensed into a single document, and this document was extensively reviewed by all contributors.

The University of Missouri is a large and complex institution. It presently enrolls more than 40,000 students on its four campuses, and the projected enrollment in 1977-78 is about 76,000 students. Graduate enrollment at present is 5,279, and is projected at 18,600 (an increase of 252 percent) by 1977-78. A large increase in demand for work in continuing education is a certainty, and both undergraduate and graduate enrollment will maintain steady and increasing pressures. Meeting these projected requirements in higher education will tax the ingenuity of and require the maximum effort by the University staff.

The University of Missouri bears a major responsibility in providing leadership and service in the field of higher education. This responsibility requires constant effort to modernize, make more relevant, and upgrade the undergraduate curricula. The competence of the teaching and research staff, the real backbone of the University, must be maintained and improved. Increasing attention must be paid to graduate studies, the most expensive phase of higher education. There is great demand for highly trained people in almost all professions. The statewide extension and continuing education program, nationally known for leadership in the field, will experience enormously increased demands for its services during the next decade.

The building of a nationally prominent state university, whose components are four campuses with highly dissimilar characteristics, is a large undertaking. For the undertaking to be successful, the planning must be intelligent and imaginative. This is the function of the University. It is only through the careful formulation of plans that the University can make the best use of the resources made available by the citizens of Missouri. A great state university can grow with this dual and complementary support.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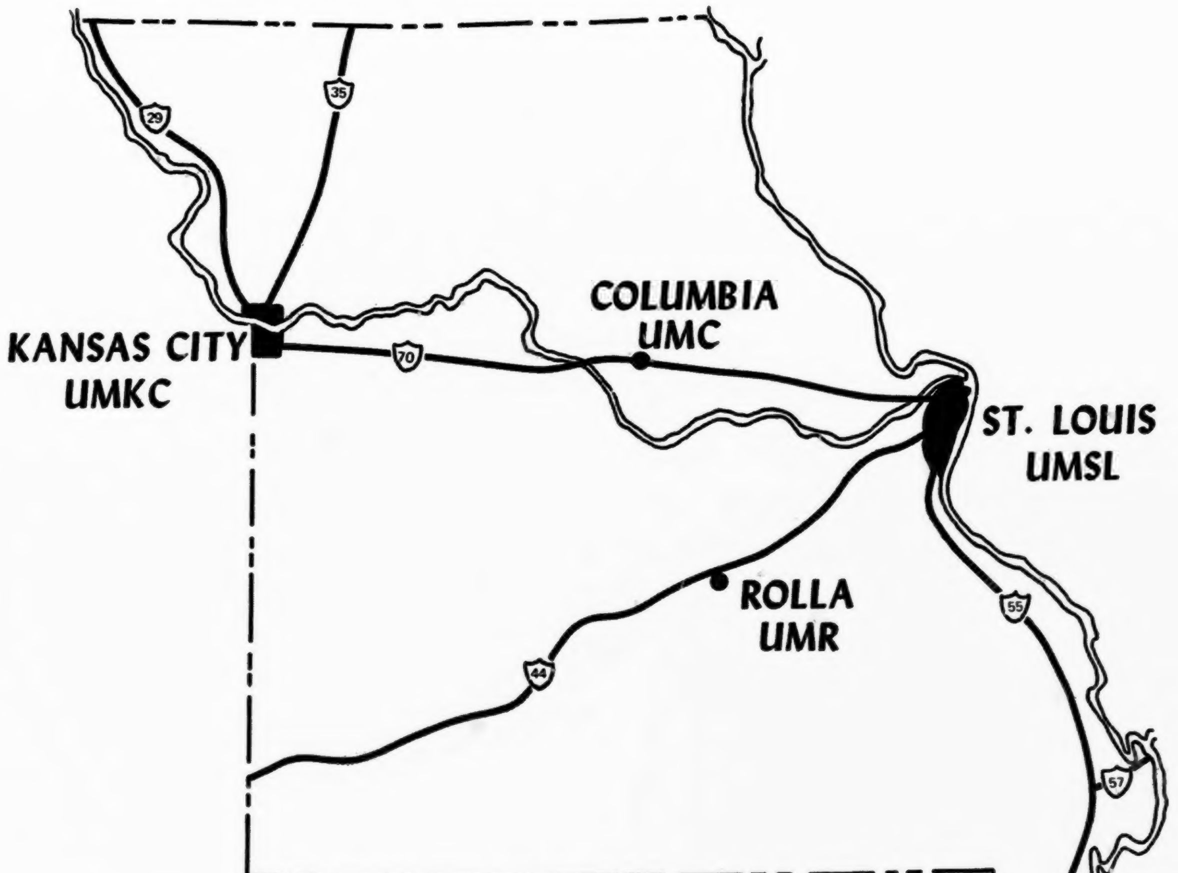
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INTRODUCTION

PLANNING RATIONALE

At a time when "comprehensive planning," "systems analysis," and "program-planning-budgeting" have permeated much of our organizational life, it is hardly necessary to explain the need for and the function of planning. However, institutions of higher education and particularly the University of Missouri have some unique planning characteristics which should be described.

A commercial concern is operated for profit, and its planning efforts are centered on maximizing net income. While a state university is clearly a heavy yielding investment which society makes in its future, it is a non-profit organization and its objectives are more varied and complex. Basically, a state university's planning activities must be focused on two areas: (1) the establishment of goals, and (2) the ways and means of attaining those goals through the most efficient possible use of the resources made available to higher education. More specifically, the University of Missouri has channeled its planning activities into the following significant areas:

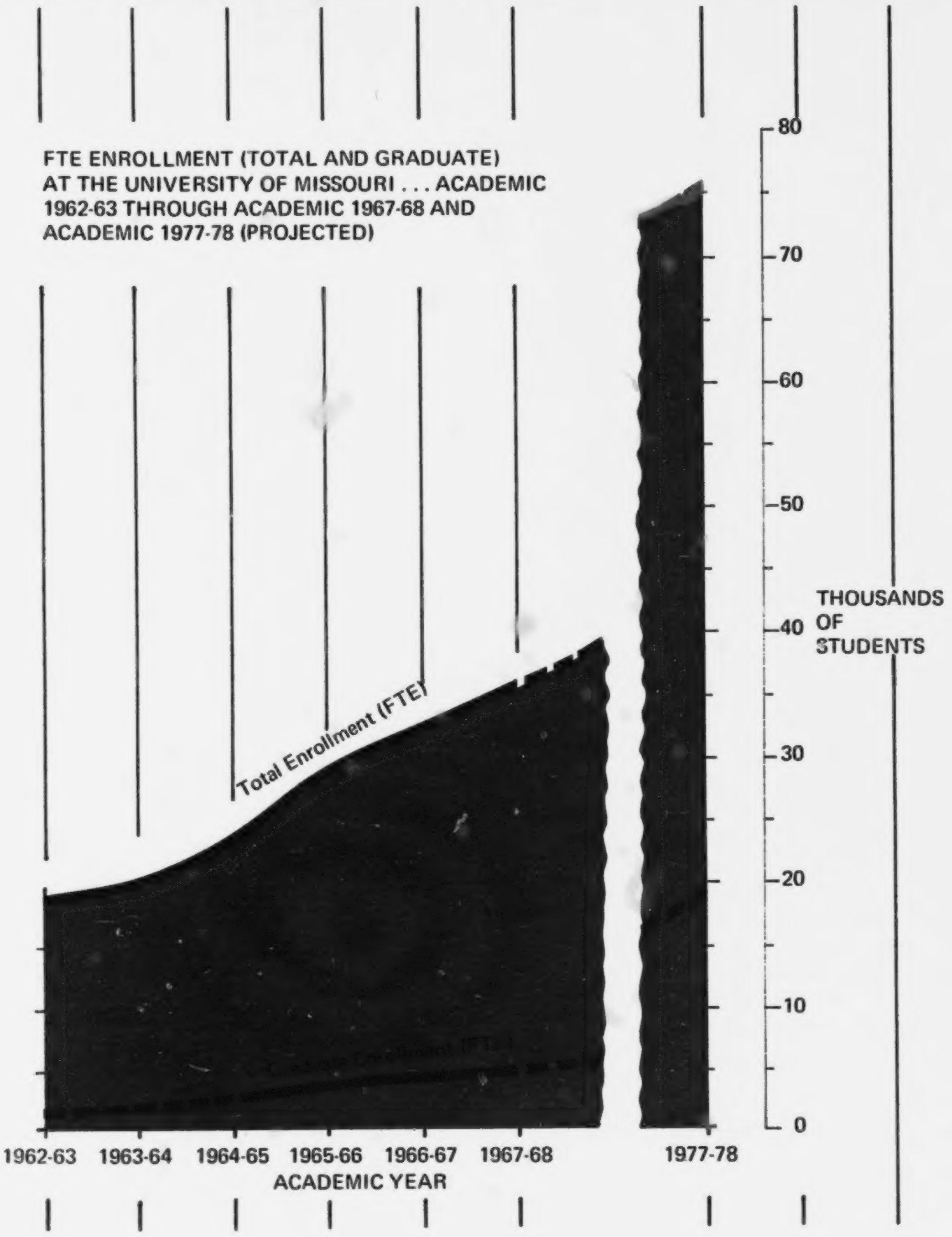
- The development of guidelines so that coordinated campus plans can be prepared and costed in considerable detail. Two assumptions are inherent in this development:
  - (1) Planning will be a continuous process, and
  - (2) The overall master plan of the University will be an integrated composite of the four campus plans.
- The provision of integration and coordination of educational programs so that the attainment of intermediate objectives may be facilitated. These objectives include the following:
  - (1) A satisfactory system of credit transfer among the four campuses and a cooperative system that will facilitate transfer of credits from junior, community, and other state colleges to the University.
  - (2) The accommodation of increasing enrollments.
  - (3) A feasible method of steadily upgrading the quality of instruction.
  - (4) The evaluation of new teaching media and the early adoption of those found to be practical and well conceived.
  - (5) The introduction of new and combinations of existing fields of knowledge into the teaching and research programs.
  - (6) A system so devised that faculty with superior or unique knowledge and skills, and expensive but unique research equipment and library resources, may best serve the total University while based on a single campus.

PLANNING GUIDELINES

The University of Missouri has developed its 10-year plan in accordance with a number of guidelines which experience indicates will result in the kind of institution of higher education needed and demanded by the citizens of Missouri. Many of these guiding principles have so often been stated as to become commonplace and universally accepted and need not be detailed in this document. However, for clarification and emphasis, the following guidelines do need to be explicitly stated:

- The planning is focused on the development of a distinctive and distinguished public university-type institution of higher learning as a statewide unit. To this end, the capabilities and competencies of the four campuses will be fully integrated and coordinated as a single university.
- Consequently, the principal goals are the education and social and cultural growth of the individual student at all academic levels. This education should relate to the last third of the 20th century, and should be so structured as to take full advantage of the uniqueness of Missouri and its educational institutions.
- In accordance with land-grant philosophy, all qualified Missouri residents should have the opportunity of attending the University of Missouri. For this reason, it does not appear wise to place artificial limitations on total enrollment at the University of Missouri. As there is no general agreement as to the best size for an individual campus, enrollment limitations on campuses are also without acceptable foundation. Projected future enrollments in the University may be calculated from estimates of:
    1. The number of graduates from Missouri high schools.
    2. The percentage of high school graduates who will seek admission to all Missouri institutions of higher education.
    3. The number of non-residents who, it seems likely, will enroll in the University.

  The University accepts the B-2 projections presented in *Population and Higher Education in Missouri 1960-1975* by Rex R. Campbell, December, 1967, as approximations that are reasonable for planning purposes. It is understood that the data and projections in the Campbell report are to be updated from time to time, which will make it possible to feed significant adjustments into the planning process of the University.
- New educational programs within the University may be started only after careful evaluation of the need for the programs and the level of support for existing programs. The University does not, except in most unusual circumstances of demonstrated need, aspire to develop new educational programs until all existing programs for which demand can be established have attained an acceptable level of quality, and then only if funding the new program does not deprive current programs of essential support.
- All existing courses of instruction within the University must maintain an acceptable level of usefulness or be eliminated.
- Because the University is an organization undergoing continuing change as it adapts to the shifting demands of the population it serves, time phasing of its master plan must remain flexible. For example, the University does not anticipate the need to activate a school of architecture during the next 10 years because the limited present need can be more adequately met through inter-university arrangements. Nevertheless, a radical change in the intensity of demand could alter this timing.
- The educational services of the University should be distributed geographically in a manner that will minimize the combined costs of providing instructional services and those incurred by students receiving the education.
- The University of Missouri should work cooperatively with all other institutions of higher education within the state, so that an effective and comprehensive total educational system may develop.



FTE ENROLLMENT (TOTAL AND GRADUATE) AT THE UNIVERSITY OF MISSOURI . . . ACADEMIC 1962-63 THROUGH ACADEMIC 1967-68 AND ACADEMIC 1977-78 (PROJECTED)

Enrollment at the University of Missouri is expected to more than double within the next decade.

The increase in full-time equivalent (FTE) enrollment is estimated at about 112 percent—from 35,849 in 1967 to 76,000 in 1978. The increase in graduate enrollment is expected to be about 252 percent—from 5,279 in 1967 to 18,600 in 1978.

Total enrollment increased 80 percent between 1962 and 1967.

THE UNIVERSITY OF MISSOURI

EARLY GROWTH AND STRUCTURE

In 1839, seventeen years after Missouri became a state, the University of Missouri was established at Columbia, and it thereby became the first state university west of the Mississippi River. Originally, the University offered a classical curriculum of four years of study in liberal arts, although instruction in medicine was offered as early as 1845 and courses in civil engineering in 1849. In 1869 the Normal College, predecessor of the College of Education, was established, and one year later women were admitted to this college. The College of Agriculture and Mechanic Arts was established in 1870 and the School of Law in 1872.

The University remained a single campus institution until 1870, when the University of Missouri School of Mines and Metallurgy was established at Rolla. For the next 93 years, the University of Missouri expanded and developed its educational and research programs on these two campuses.

Schools of Engineering, Journalism, Nursing, Medicine, Veterinary Medicine, Business and Public Administration, Forestry, and Home Economics were established; the Graduate School was created; and the Extension Division was organized. Two new campuses were added in 1963–in Kansas City the private University of Kansas City became a campus of the University of Missouri, and in St. Louis an entirely new campus was established. The 1967 fall semester full-time equivalent enrollment of the four-campus University of Missouri was 35,849 students.

As provided by the state constitution, the University of Missouri is governed by a Board of Curators composed of nine members appointed by the Governor of the State of Missouri. The President of the University is the chief executive officer and the chief academic officer; he is directly responsible to the Board of Curators for the operation of the University and for its academic programs. Eight University-wide officers report directly to the President. These officers are: (1) Vice President for Administration, (2) Vice President for Academic Affairs, (3) Vice President for Research and Graduate Studies (to be phased out in 1969, with responsibilities transferred to Vice President for Academic Affairs), (4) Vice President for Extension, (5) Comptroller, (6) Business Manager, (7) Vice President for University Development, (8) Director of University Information Services. There are four Chancellors, one on each campus, who report directly to the President and are the chief administrative heads and academic officers of the four campuses. All campus officers concerned with campus programs and functions report to and are responsible to their respective Chancellors.

Thus, there are two levels of University administration. University officers are responsible for assuring that University policies are made effective and for maintaining University coordination. Campus officers are responsible for carrying out University policy on the campuses under the direction and coordination of the President of the University and his staff. To encourage the close cooperation and communication between University and campus staffs essential in carrying out these responsibilities, each Chancellor and each University officer have developed procedures designed to maintain lines of effective communication among members of their respective staffs.

A very important activity involving the two levels of University administration is the introduction of new campus academic programs, which must be approved by the President and Board of Curators before they can be implemented. All proposals by any college, school, or division of the University for new graduate and advanced professional degrees and programs and all new proposals for multidisciplinary research organizations are referred to the University Graduate Council for review, evaluation, and coordination. The University Graduate Council then makes recommendations to the President. In a similar manner, any proposals by any college, school, or division of the University for new undergraduate programs are referred to the Undergraduate Studies Council for evaluation and coordination and recommendations to the President.

This administrative structure is designed to accomplish two somewhat divergent, but basically related, objectives. All four campuses must function as components of a system operating under policy established by the Board of Curators and made operational by the President. However, each campus has important characteristics that deviate significantly from those of the other three campuses, and sufficient flexibility must be present to permit each campus to develop its own unique potential. Under this administrative structure, it is anticipated that each campus will develop those education, research, and service programs that can utilize the available resources of the immediate area and, at the same time, assume an appropriate share of statewide need in conformance with overall policy of the total University.

FUNCTIONS--INSTITUTIONS OF HIGHER LEARNING

Institutions of higher learning are scattered over the United States according to no readily apparent pattern and certainly not as the result of a well-conceived plan. They present a vast variety of sizes, educational offerings, funding sources, and institutional personality. Like any business organization, they are born, expand, or expire according to their relative competitive strengths. They operate in local and national markets in which demand for their services is determined by students seeking an education.

The demand for higher education by students is an important planning element that must never be underevaluated nor overlooked. Although the current overall demand for higher education is so strong as to force many students to accept other than their first choice of schools, individual components of the demand are neither strong nor stable. Consequently, the planners of each college and university must carefully consider the current future market demand for its services and as carefully assess the future supply of services to be provided by competing institutions.

In this market, two criteria used by students in selecting an institution of higher education are important to state universities: (1) quality of academic programs, and (2) tuition expense. Unfortunately, many qualified and even exceptional students may be denied a college education or be forced to accept admission to an institution of inferior quality because of limited personal financial resources. The rationale for society lending financial support to this market demand was stated in 1965 by President Elvis J. Stahr of Indiana University:

> . . . 1) the principle, recognized by our forefathers, that society does indeed benefit from an educated citizenry, indeed cannot survive without it, and therefore in equity should bear at least part of the burden; and 2) the fact that graduates become members of society and quickly begin to repay the cost of their education in taxes and other ways during their many productive years. Their education is far from a free ride at society's expense; for they with their higher earnings are keeping the investment in education constantly renewed.
>
> In study after study, it has been shown that the greatest single factor in the growth of the Gross National Product in this century has been education, not capital, not the size of the labor force. The productivity of the work force, all the way through top management, has reflected the mounting economic effect of education.

Consequently, if a state university is to serve adequately the state's resident population, it must provide academic programs of excellence and charge the lowest possible tuition rates.

Universities and colleges are social institutions, and the primary service they provide is education. Their objective is to develop in the student an understanding of himself and of the natural, social, and cultural worlds around him so that his inherent capabilities may be effectively adapted to his economic, social, cultural, and personal life. Essential functions of educational institutions, then, are to assist the student—by directing his efforts into those areas of study which will be most fruitful and personally rewarding to him—and to indicate the terminal point in his formal full-time education, so that there will be the least waste of his time and society's resources. From the social viewpoint, this means preparing each student for his maximum contribution to and participation in the democratic way of life.

Because it is neither possible nor desirable for students to receive their lifetime education from formal sources, including colleges and universities, they must be prepared with incentive, method, and foundation for continuing the learning process throughout their lifetimes; this preparation should be an integral part of their formal instruction. The tremendous acceleration in the growth of knowledge is also forcing an increasing portion of the educated community to return to formal education from time to time, and this continuing education is an increasingly important obligation of institutions of higher education. In essentially all professions continuing education is a must.

The sheer mass of knowledge combined with an increasing proportion of the population seeking higher education is placing a considerable strain on available resources. Thus, it has become absolutely essential that the resources committed to higher education be efficiently used. Fundamentally, this becomes a search for better teaching methods and media. This is an activity that is receiving serious and continuous attention by all institutions of higher learning.

FUNCTIONS--UNIVERSITY OF MISSOURI

The University of Missouri has the responsibility of performing a dual educational service for the state. It must (1) make high quality university education available to all Missouri citizens capable and desirous of it at costs that are not prohibitive to the student; and (2) provide for the state's needs for educated competence. Although these dual responsibilities are not incompatible, the satisfaction of one does not automatically meet the requirements of the second. The University of Missouri is part of a national market supplying educational services. Students are free to purchase in this market; they are limited only by their capabilities, unique requirements, and available funding. When the student has finished his education, he is free to seek employment and select that combination of employment and living conditions which best suits his desires. In a similar manner, resident organizations seek employees and are guided solely by the competence that can be purchased with the available salaries and wages.

Thus, resident students seek an education that prepares them for successful competition, and resident organizations seek the best employee services per dollar expended. The University of Missouri is in an excellent position to perform its dual responsibility, if, in addition to low fees and proximity to student population, there is continued competence to provide higher education of superior quality. Anything short of this would be a disservice to the potential student population and to the economic and social organizations of the state. There is increasing evidence that a quality institution of higher education provides substantial drawing power that attracts and retains high caliber personnel within the state.

There is a tendency to consider the total formal educational system as a hierarchical structure with a base of grade-school students and teachers and the pyramid extending upward through high school, junior college, and baccalaureate college to an apex at the graduate-doctoral level. Both students and teachers are presumed to acquire more competence, status, and importance as the doctoral point is approached. This view is somewhat shortsighted, and its use as a sole criterion in educational planning will result in wasted resources and an inferior educational product. If all students receive formal education to the extent their inherent capabilities permit, there will be a series of termination points extending from grade school to the very top level of the pyramid. Students dropping out at the lower levels should receive the best possible instruction because that instruction, at whatever level terminated, is the sole formal preparation they will have for attaining a fruitful and satisfying lifespan. For those students who will progress to successively higher points, the basic preparatory education is of tremendous importance. If the preparation is inadequate, resources will be wasted at higher levels in correcting student deficiencies, and there is high probability that the student will not attain his maximum educational potential.

Thus, the University of Missouri is intensely interested in the quality of instruction provided for high school and junior college students who may subsequently enroll in its baccalaureate programs. More directly, the University attaches great importance to the quality of instruction which it provides its student body and will continuously strive to upgrade its efficiency and effectiveness.

THE FOUR EDUCATIONAL CATEGORIES

Thus, within the State of Missouri, only the University of Missouri provides public higher education in a university-type intellectual setting, and this is one of the alternatives of opportunity that must always be available to citizens of the state. Therefore, the University cannot and has no plan to de-emphasize or curtail undergraduate educational efforts in the years ahead. Recognizing the vital importance of undergraduate education, the University proposes to constantly increase its quality by taking the following basic steps toward improving undergraduate teaching:

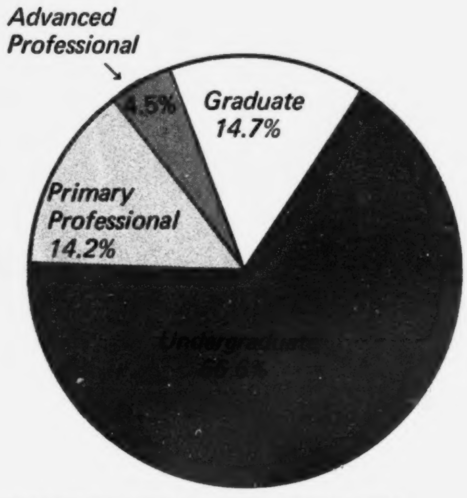
- Maintenance of a campus ethos that encourages effective teaching. Good teaching will be properly rewarded, and a concern for student learning will be appropriately recognized.

- Careful selection and assignment of faculty to undergraduate teaching responsibilities. Toward this end, an increased proportion of professorial-rank staff will be engaged in teaching freshman and sophomore students, while graduate students assigned teaching responsibilities will be selected with care and will be properly trained and supervised.
- Utilization of a variety of teaching patterns and procedures: the lecture, small group discussion, tutorials and an emphasis on independent learning.
- Attention to the evaluation of effective teaching, in part as a means of attesting to its importance and in part as a necessary prerequisite to its improvement.
- A demonstrated concern about student growth and development; a recognition that desirable changes in behavior are the outcome of effective teaching.
- Recognition of the importance of technological advances in the development and use of instructional media; realizing that the use of such media can enhance the effectiveness of teaching and learning.

The University of Missouri, for cost-study purposes, has divided the education programs into four categories: undergraduate, primary professional, advanced professional, and graduate. In the undergraduate category, all are baccalaureate programs except those designated primary professional. The primary professional programs are: *Agriculture,* junior and senior years; *Engineering* (including the School of Mines and Metallurgy), sophomore, junior, and senior years; *Journalism,* junior and senior years; *Pharmacy,* all four years; *Nursing,* sophomore, junior, and senior years; *Forestry,* junior and senior years; *Home Economics,* junior and senior years. Advanced professional are: all three years of *Law* (reclassified from primary professional); and all four years of *Dentistry, Medicine,* and *Veterinary Medicine.*

Using this basis for analysis, the 1967 full-time equivalent enrollment at the University by campus is given in the table below.

UNDERGRADUATE		
Columbia	34.2%	66.6%
Kansas City	12.7%	
Rolla	4.9%	
St. Louis	14.8%	
PRIMARY PROFESSIONAL		
Columbia	7.0%	14.2%
Kansas City	0.5%	
Rolla	6.7%	
ADVANCED PROFESSIONAL		
Columbia	2.4%	4.5%
Kansas City	2.1%	
GRADUATE		
Columbia	9.7%	14.7%
Kansas City	3.1%	
Rolla	1.9%	

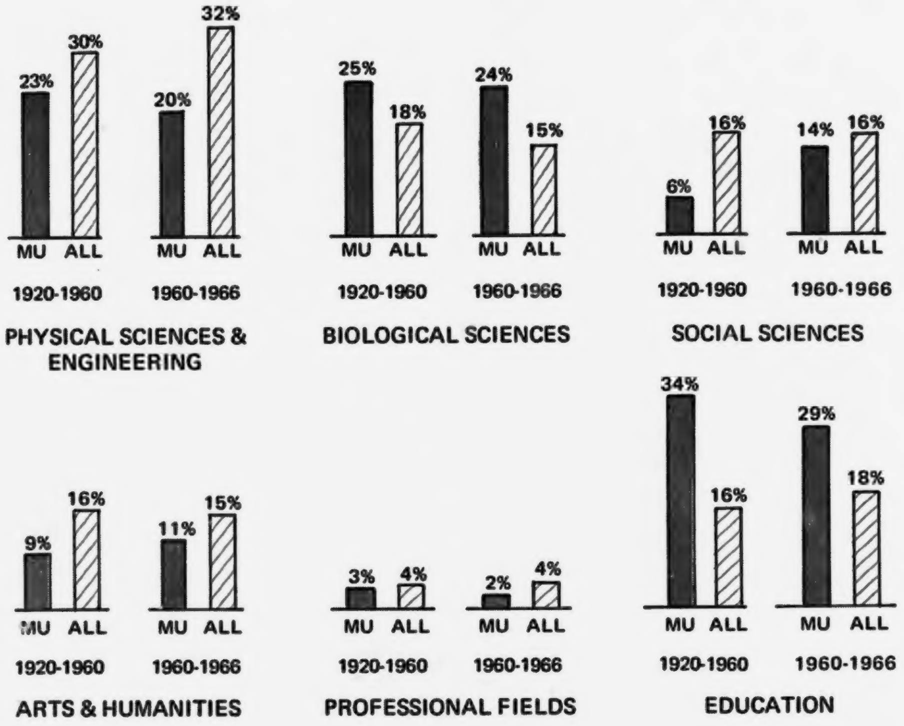


PERCENT FTE ENROLLMENT BY EDUCATIONAL CATEGORIES . . . FALL 1967 AT THE UNIVERSITY OF MISSOURI

Enrollment by educational-program categories at the University of Missouri . . . fall 1967

	Columbia	Kansas City	Rolla	St. Louis	Total
Undergraduate	12,261	4,546	1,753	5,305	23,865
Primary Professional	2,509	169	2,423	–	5,101
Advanced Professional	872	732	–	–	1,604
Graduate	3,493	1,100	686	–	5,279
Total	19,135	6,547	4,862	5,305	35,849

NUMBER OF STUDENTS ENROLLED IN EDUCATIONAL PROGRAMS AT THE UNIVERSITY OF MISSOURI . . . FALL 1967



Distribution of doctorates among graduate programs—at the University of Missouri and all universities

	1920-1960		1960-1966	
Discipline	**M.U.**	**All**	**M.U.**	**All**
Physical Sciences & Engineering	23%	30%	20%	32%
Biological Sciences	25%	18%	24%	15%
Social Sciences	6%	16%	14%	16%
Arts & Humanities	9%	16%	11%	15%
Professional Fields	3%	4%	2%	4%
Education	34%	16%	29%	18%
Total	100%	100%	100%	100%

PERCENT DISTRIBUTION OF DOCTORATES AMONG GRADUATE PROGRAMS . . . MU AND ALL UNIVERSITIES

The distribution of doctorates among the several graduate programs at the University of Missouri and for all universities indicates that the University is improving its balance, particularly in the Social Sciences, Arts and Humanities, and Education. This is shown in the above table and graph.

The United States Department of Health, Education and Welfare has calculated the number of baccalaureate, master's and doctoral degrees awarded annually from 1955-65 and has projected the trend to the year 1975-76. The degree programs are divided into two categories: (1) natural sciences and related professions; (2) social sciences, humanities, and related professions. From these data the actual and projected percentage increase figures were calculated as shown in the accompanying table.

From these data, it is apparent that sizable increases have been registered and that competent authorities expect the increases to extend into the years ahead. The largest increases have been and are expected to remain in graduate study.

Discipline	Baccalaureate and First Professional	Master's	Doctoral
Natural Sciences & Related Professions			
Increase—1955-65	59%	172%	118%
Increase—1965-75	72%	130%	127%
Social Sciences, Humanities and Related Professions			
Increase—1955-65	79%	97%	78%
Increase—1965-75	74%	69%	94%

OFFICE OF VICE PRESIDENT FOR ACADEMIC AFFAIRS

A large organization can function effectively only with the systematic use of procedures which parallel the "quality control" of industry. Obviously, knowledge, motivation, and life-long productivity do not lend themselves to precise mathematical measurements or statistical study. This enhances the challenge and opportunity to the University for the development of effective measurement devices, communication techniques, and evaluative procedures.

As of July 1, 1968, the Office of Vice President for Academic Affairs was established for the primary purpose of encouraging, stimulating, and at times requiring high quality academic performance in the purest sense of the word. It will serve as a coordinator of academic effort in all areas of education, research, and planning. As supporting arms, it has the newly established Office of Institutional Research and the well-established fiscal research program of the Comptroller's Office.

Each new academic and research program will be reviewed as to intrinsic merit, cost, and its place in long-range goals of the University, as well as its impact upon the quality of existing programs. Existing academic programs will be systematically studied and reviewed to determine their needs, value to the general community objectives, and existing quality. Appropriate use of national authorities in each field of scholarly endeavor will be a planned part of the review process.

Maximum responsibility will be placed upon the local departments and campuses to initiate and carry out these studies under the guidelines and advice provided by the appropriate statewide academic council and the Office of the Vice President.

GRADUATE STUDY AND RESEARCH

The University is aware of the increasing importance attached to graduate study and will continue the trend toward greater participation in graduate education. However, the University also recognizes that for graduate study, research is a prerequisite backdrop and environmental circumstance because graduate education fundamentally is: (1) pushing the student, from a knowledge point of view, to the frontiers of his field; and (2) handing him the tools to engage the unknown beyond.

Although it is customary to speak of education as the primary function and research as supporting, in reality the two are inextricably bound together in institutions of higher education. The business of education is transmitting knowledge, while research is concerned with creativity, discovery, and inquiry at the frontier of human knowledge. An inquiring mind, objectivity, a critical and questioning attitude, and an intimate familiarity with the scientific method are basic elements of research and also are characteristic of the educated man. These characteristics flourish best in a favorable climate of substantial and productive research programs found in the graduate centers of excellence. Experience indicates that the higher the level of educational instruction, the greater the degree of research involvement, so that at the doctoral level research and teaching become almost indistinguishable. Distinguished universities almost always are the result of high quality graduate work and the research productivity of their faculties.

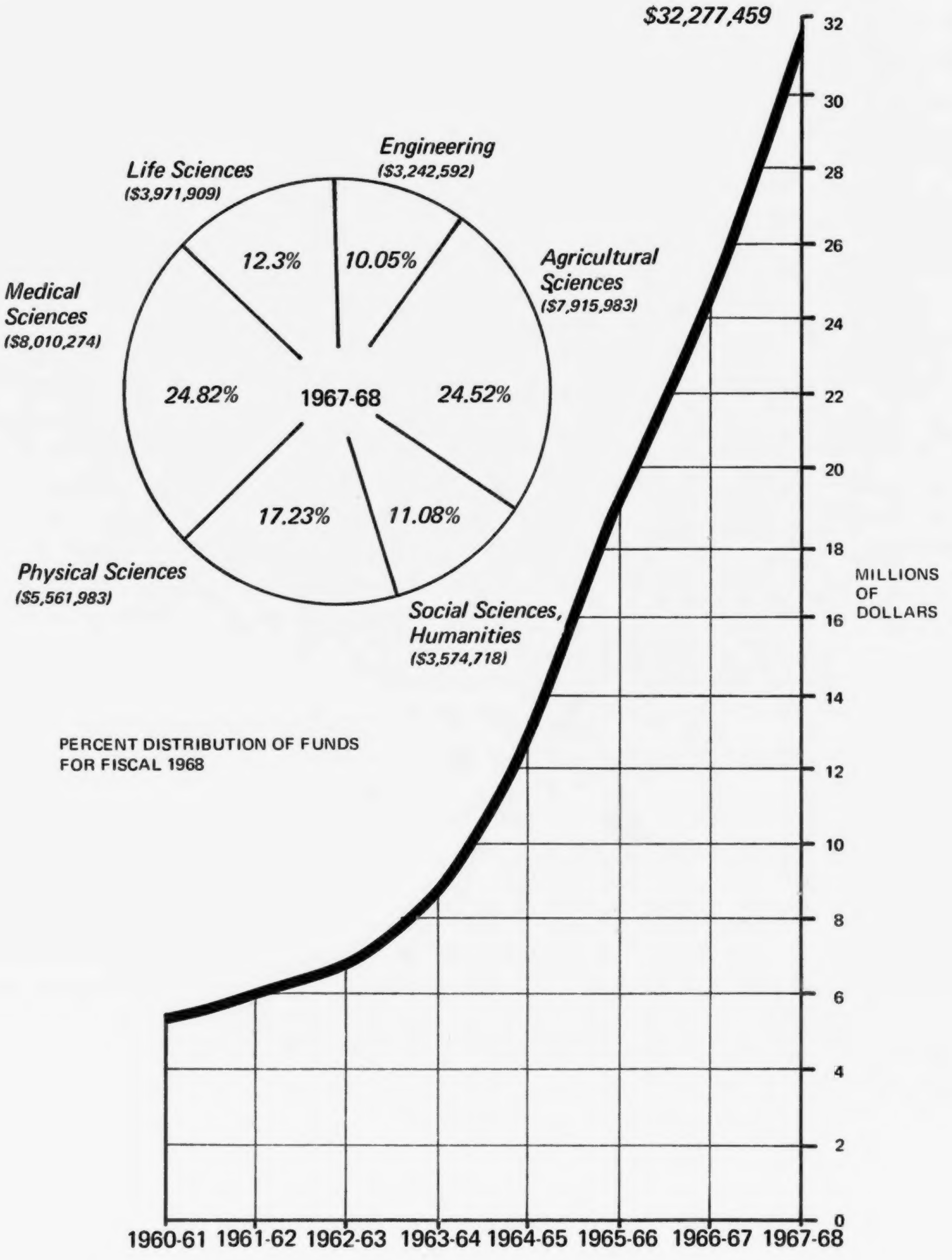
Thus, research is an essential element of higher education and contributes significantly to all levels of instruction. Research is also important to the Missouri population because of its product. Although a substantial portion of University research is supported with federal funds and the problems studied have general applicability, the findings or knowledge discovered are almost always of local importance. In feasibility studies, local situations and problems are used in the demonstration projects with considerable benefit accruing to the state areas concerned. Candidates for the master's and doctoral degrees are required to complete research projects of superior quality, and the areas of study are likely to be those of value to the state population. A superior research program is essential for high quality teaching, and the combination is most likely to produce findings and information important to the economic, governmental, and social organizations of the state.

During the past 15 to 20 years the national expenditures for research and development have registered an enormous expansion. The University of Missouri has been participating in this rising importance of research. In 1960 the University expended $5,670,699 on research, and by 1967 this had been expanded to $32,277,459, or an increase of 469 percent. This $32,277,459, largely from non-state funding sources, was divided as follows:

Medical Sciences	$8,010,274
Agricultural Sciences	$7,915,983
Physical Sciences	$5,561,983
Life Sciences	$3,971,909
Social Sciences, Humanities	$3,574,718
Engineering	$3,242,592

In 1966 the University of Missouri ranked 22nd in the nation among universities in total federal dollars obtained. This was an advance from a ranking of 47th in 1964 and 40th in 1965.

The responsibility of representing and advising the President on the development and coordination of the rapidly expanding research programs on the four campuses rests with the Vice President for Research and Graduate Studies, who works closely with the University Graduate Council. This Council advises the President on all phases of policy regarding graduate education and research and is composed of the deans of the graduate schools and the deans of schools and colleges having large graduate and research programs. Also, the Vice President for Research and Graduate Studies is



Expenditures for research at the University of Missouri, fiscal 1961-1968 . . . and distribution of funds for fiscal 1968

1960-61	$ 5,670,699
1961-62	$ 6,111,629
1962-63	$ 6,926,994
1963-64	$ 8,950,699
1964-65	$12,759,664
1965-66	$19,472,269
1966-67	$24,333,181
1967-68	$32,277,459

(tabular)
RESEARCH EXPENDITURES
(graphic)

responsible for assisting the Graduate Deans and Research Coordinators on the four campuses in the development and consultant evaluation of their programs and for the policy review and coordination of all applications to government funding agencies, foundations, industry, and private individuals for support of research and training projects. The Office of the Comptroller is responsible for fiscal review of the proposals.

To date, the statewide University has developed and is maintaining six research facility centers wherein individual research investigators may pursue their specific areas of interest. These are: (1) Research Reactor Facility; (2) Charles and Josie Sinclair Comparative Medicine Farm for Study of Chronic Disease and Aging; (3) Environmental Health Center; (4) Space Sciences Research Center; (5) Water Resources Research Center; (6) Office of Industrial Development Studies. So that the faculty of all four campuses may have free and uninhibited access to these facilities, they have been placed under the administrative jurisdiction of the Office of Research Administration. Each facility has a director, who is advised on policy matters by an intercampus committee. All research is conducted by individual investigators, who are members of academic departments of the University.

Whatever a university is or may hope to become is dependent upon the quality of its faculty. Each college and university must continuously compete to acquire new faculty and to retain its current complement. To successfully attract faculty of desirable quality, a combination of salary and academic environment must be offered. The University of Missouri has recently established four new programs designed to increase faculty strength in the areas of graduate study and research. Each program is administered by the individual campuses under broad university policy prepared by intercampus committees.

The Assistant Professor Research Fund provides support to young and exceptionally capable research or creative arts faculty, who experience difficulty in securing an initial grant from funding agencies. This program was established in 1967-68 and is proving to be of major assistance in the recruitment, retention, and maturation of junior faculty.

The Faculty Improvement Program becomes operative in the 1968-69 academic year and is designed to keep unusually well trained and capable staff currently informed and on the cutting edge of discovery in their respective fields. It provides for (1) short term leaves of absence to study at leading university or government laboratories; (2) attendance at symposia or conferences on topics of special interest and value to the staff member; (3) employment of distinguished persons as visiting professors, to stimulate staff and maximize their effectiveness; (4) other activities that contribute directly to teaching effectiveness.

In the spring of 1968 the Board of Curators approved a new category of appointment, the Curators Professorship. It is anticipated that only a limited number of such appointments will be made, and that those appointed will be persons with outstanding scholarly achievement and of exceptional ability. Such appointees will contribute substantially to the maintenance of superior academic standards, to the attraction of exceptionally qualified graduate students, and to the general reputation and visibility of the University.

The University of Missouri is a member of the Mid-America State Universities Association (MASUA) and participates in the MASUA Traveling Scholar Program. This program enlarges and strengthens the opportunity for graduate work at MASUA universities by sharing resources for instruction and research at the doctoral level. Not only is expensive duplication of faculty and equipment avoided, but the horizons for graduate study and research are substantially increased for participating universities.

Another activity that contributes to the University's drive toward excellence is the Development Program, which includes both fund raising and alumni relations activities. It involves mobilizing the various publics of the University into active supporters for its many teaching, service, and research responsibilities. During the past decade, the Development Program has grown in scope and importance, enhancing the financial position of the University and involving a substantial number of alumni in University programs. During the next 10 years, the alumni body of all four campuses will grow to more than 150,000 persons. The challenge for the future is to increase the involvement of these alumni in interest and financial support, and also to obtain greater support from other constituencies, such as friends of the University, corporations, and foundations.

These somewhat unique activities, designed to improve quality in teaching and research, will move the University forward toward its goal of academic excellence, but considerably more effort and resources will be required before the major objective can be attained—the creation of a great university.

UNIVERSITY OF MISSOURI
COLUMBIA KANSAS CITY ROLLA ST. LOUIS
EXTENSION
CONTINUING
EDUCATION
The State
is
the Campus

116 EXTENSION CENTERS

EXTENSION AND CONTINUING EDUCATION

Extending University knowledge resources, on a continuing basis, to the people of the state is the major function of the Division of Extension and Continuing Education of the University of Missouri. Extension programs reflect the open and extended campus concept, designed to break through the "ivory towers" to apply University know-how to the social and economic problems of the geographic area served by the University. This approach conforms with the spirit and concept of the land-grant tradition. Of equal importance are the continuing education programs involved in the vital process of retreading, refreshing, and updating the academic competence of the adult population.

The major contribution of the University of Missouri to its state population derives from its program of educating the resident students and providing educated personnel for Missouri's economic and social organizations. A supplementary contribution comes from associated research activities. In addition, the University makes significant contributions toward the solution of individual and community problems. Some of these contributions are made possible by direct appeals for assistance from state organizations that are aware of the competencies of the University faculty. Thus, the faculty serve on committees and boards, offer consulting advice, undertake special research projects, and assist in establishing systems for organizational use. Special training sessions may be devised to meet immediate and urgent needs. Many of the complex problems that plague urban, semi-urban, and rural communities demand the application of skills and knowledge found primarily in university faculty. Such direct contributions are also of benefit to the faculty concerned and to their students.

The function of maintaining an acceptable adult education interface between the University and its statewide population resides in the Vice President for Extension. Significantly, this organizational structure developed for extending the University of Missouri beyond its four campuses has gained national attention. Essentially, it is composed of the following elements:

- The Vice President for Extension functions at the University-wide level and is responsible for advising the President and representing him in the development and coordination of continuing education and extension programs of the University. Advising him is the University-wide Extension Council composed of faculty and deans from the four campuses.
- On each of the four campuses a Dean of Extension reports to the campus Chancellor and is responsible for the development and coordination of continuing education and extension programs emanating from that campus. Primary responsibility for extension and continuing education programs on each campus resides in the respective academic units.
- Each county of the state has an Extension Center, staffed by University faculty and operating under the administrative jurisdiction of the Vice President for Extension. These centers are partially funded locally; they have been in existence for more than 50 years; and as local points of contact for the University, they integrate its many campus programs into the communities of the state.

Center staff members design and conduct programs in conjunction with campuses, do some direct teaching in their individual areas of academic competence, and serve as educational programmers. Plans call for a gradual reduction in the number of Extension Centers, as district centers are staffed with a corps of specialists appropriate to the major needs of the resident population and are equipped with modern communication facilities. Also planned are gradual redirection of resources to the population centers, increased use of para-professionals, and continuous upgrading of the quality of instruction.

While Extension teaching flows from the academic units, the educational needs of most groups are best served through an interdisciplinary approach. Hence, programming is organized around five major clientele groups: professionals; farmers and agri-businessmen; families and youth; businessmen, industrialists, organized labor leaders, and officials; employees and leaders in the community and public section.

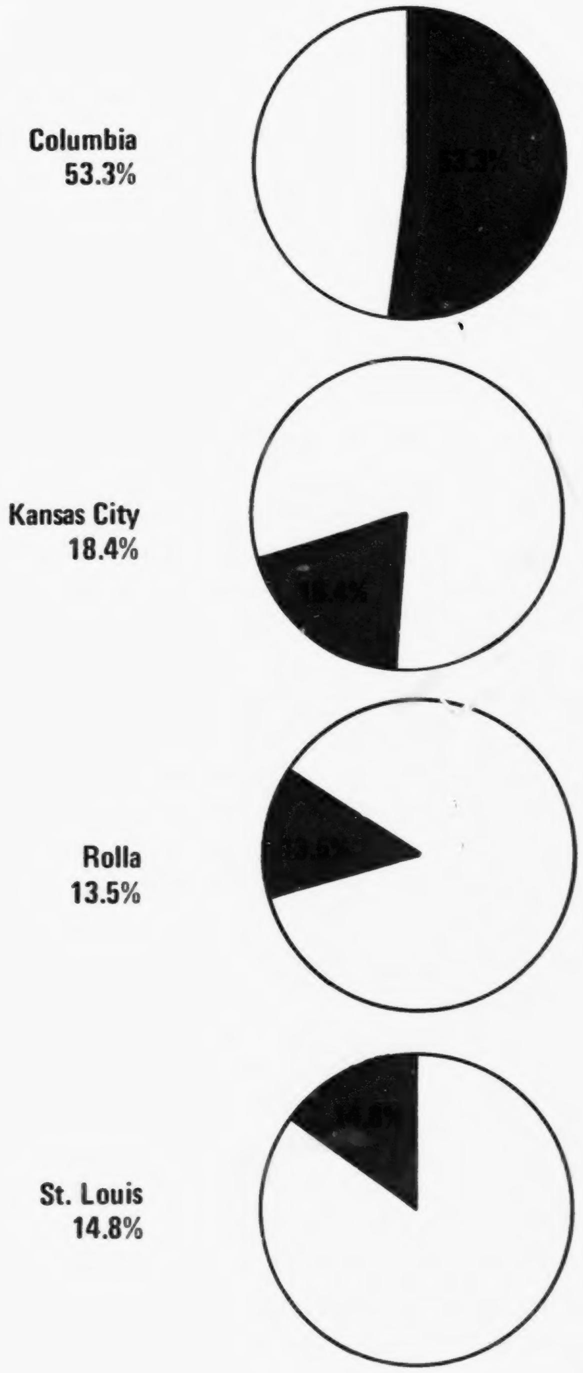
A variety of formal and informal education techniques are used. Formal approaches include credit courses off-campus, correspondence or home-study courses, non-credit courses, short courses, conferences, and meetings designed specifically to meet the needs of a particular clientele group. Informal approaches are made through individual conferences, technical publications, letters (both individual and circular), and the mass media. Through a combination of approaches, 1,250,000 Missouri citizens are currently being reached annually by the University of Missouri. The numbers contacted may not increase significantly, but there will be a sharp rise in the intensity of instruction.

The University has recently established a new program which contributes to Extension activities. This is the urban problem-solving effort, which is designed to increase the effectiveness and relevance of the University's activities in metropolitan areas. Through this program, divisions, departments, and individual faculty members on the four campuses receive limited support for innovating approaches that are appropriate to the University and effective in aiding in the solution of major metropolitan problems.

Extension will continue to function under the following basic guidelines:

- High quality programs will be offered at all university academic levels.
- Programs will be based upon the expressed needs of Missouri citizens.
- Programs will use faculty of the University of Missouri and other universities, as well as qualified persons not on university staffs.
- There will be increased allocation of resources to social and community problems, with emphasis on urban areas.

THE FOUR CAMPUSES



Distribution of enrollment on the four campuses . . . fall 1967

Missouri School of Mines and Metallurgy	**1870**
University of Missouri - Rolla	**1964**
School of Mines and Metallurgy	
School of Engineering	
School of Science	
Graduate School	
Extension Division	**1964**
Division of Liberal Arts	**1968**

EDUCATIONAL DEVELOPMENT ON THE UNIVERSITY OF MISSOURI - ROLLA CAMPUS

the Rolla campus

● ***Rolla***

The University of Missouri School of Mines and Metallurgy was established February 24, 1870, as the mechanical arts institution under the Morrill Land Grant Act of 1862. The Rolla campus has been a specialized campus oriented to engineering and physical science education throughout its long history and has attained national visibility in several areas of endeavor. To meet the unique needs of modern professional engineering, the campus has developed academic programs in the basic and applied physical sciences and, in addition, has developed an appropriate array of supporting liberal education courses in the social sciences and humanities. Consequently, the essential elements of a comprehensive education program in professional engineering are located on this campus. In recognition of this development, the University of Missouri School of Mines and Metallurgy, by action of the Board of Curators, on July 1, 1964, was renamed the University of Missouri - Rolla and its departments were grouped into new schools: the School of Mines and Metallurgy, the School of Engineering, the School of Science, and the Graduate School. The Division of Liberal Arts and the Extension Division complete the present organization. The 1967-68 full-time equivalent number of students enrolled on the Rolla campus is approximately 4,900.

This campus (see map on pages 18 and 19) is situated in Rolla, which has a current population of about 14,500, including the student enrollment, and which is located in the central portion of the state about 90 miles south and slightly east of

Columbia and 100 miles southwest of St. Louis on Interstate Highway 44. Largely because of the University of Missouri, three important governmental agencies are located in Rolla: the Missouri Geological Survey; the topographic division of the United States Geological Survey; and the metallurgical research laboratories of the United States Bureau of Mines. These agencies provide a community of some 800 professional engineers, geologists, cartographers, mathematicians, and technicians. The number of full-time equivalent faculty, by rank, on the Rolla campus is as follows (1968-69):

Professors	**80**
Associate Professors	**109**
Assistant Professors	**105**
Instructors	**77**
Other Teaching and Research	**62**
Total Faculty	**433**

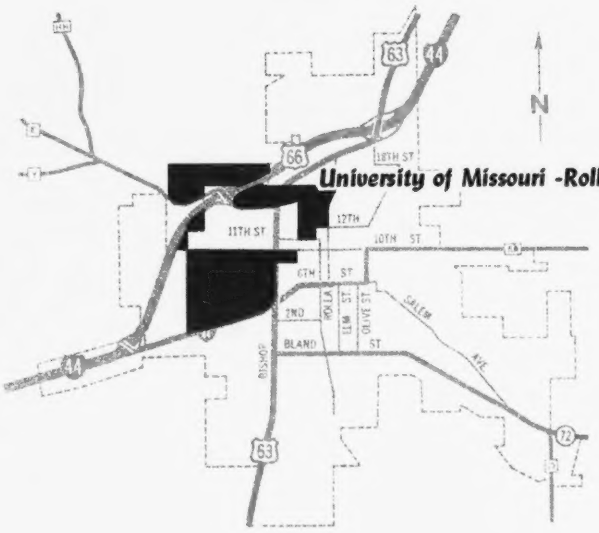
Recognizing the increasing importance of graduate study to the field of engineering, a comprehensive graduate-degree program has been developed on the Rolla campus. The graduate and baccalaureate degrees now offered are shown in chart form in the appendix.

The Rolla campus has important research programs in the physical sciences and engineering. In 1967 the Department of Physics received a National Science Foundation Departmental Science Development Grant of nearly $500,000 to assist in the development of exceptional competency in physics.

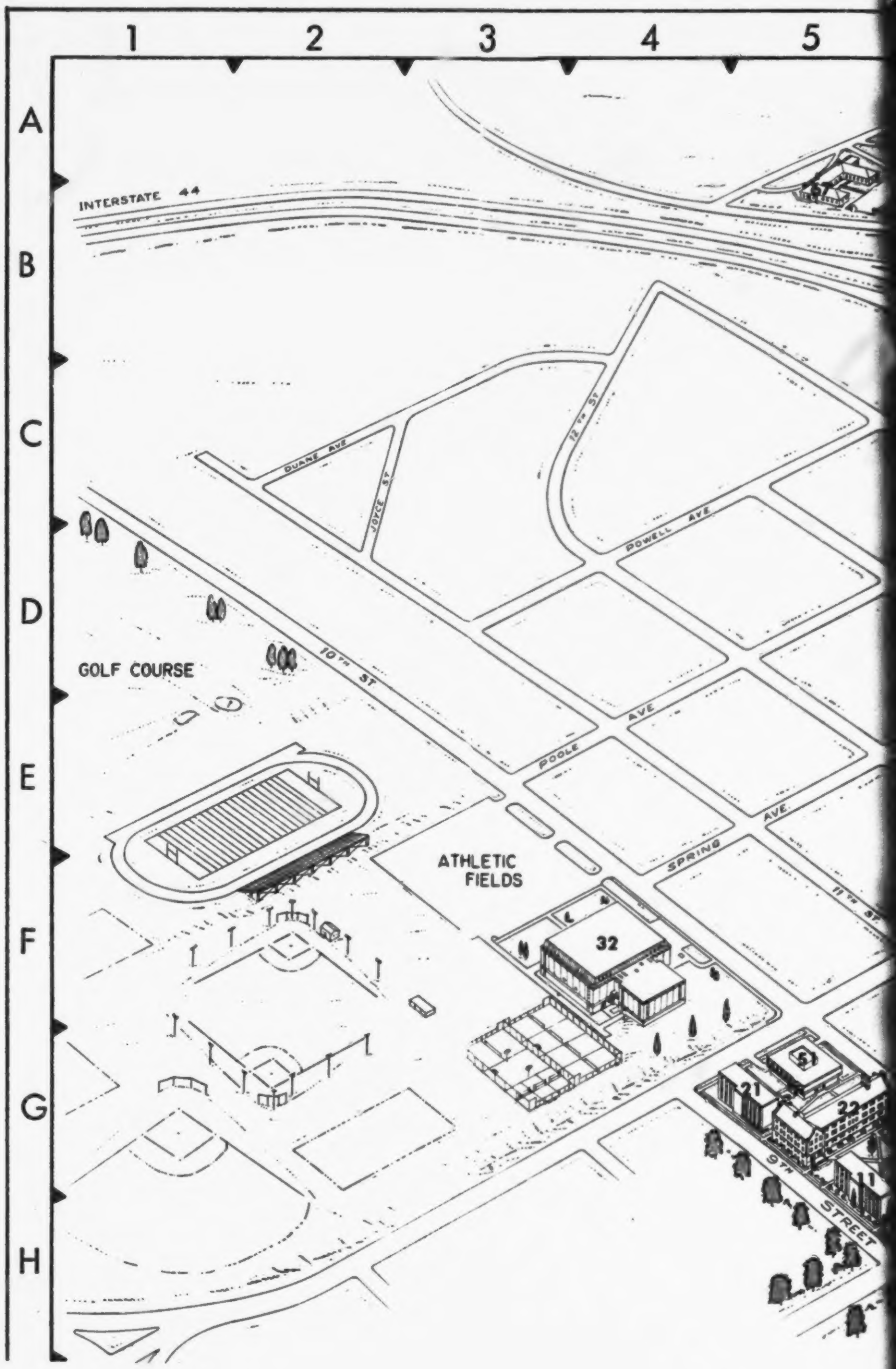
Engineering and the physical sciences have participated in, and often led in, the rapid advancement of knowledge. Consequently, Extension is vitally concerned on the Rolla campus with continuing education for professional graduates in these areas. Of major importance is the extent to which continuing education must be taken off the campus into areas where the professional engineer populations are concentrated. For example, several graduate-degree programs in engineering are given on the St. Louis campus by faculty from the Rolla campus. (See the chart in the appendix.)

Also, the Rolla campus operates a Cooperative Education Program, which is among the 12 largest in the nation. Currently, there are 422 students in this program; it involves alternating, in the sophomore and junior years, on-campus course work with work in industry.

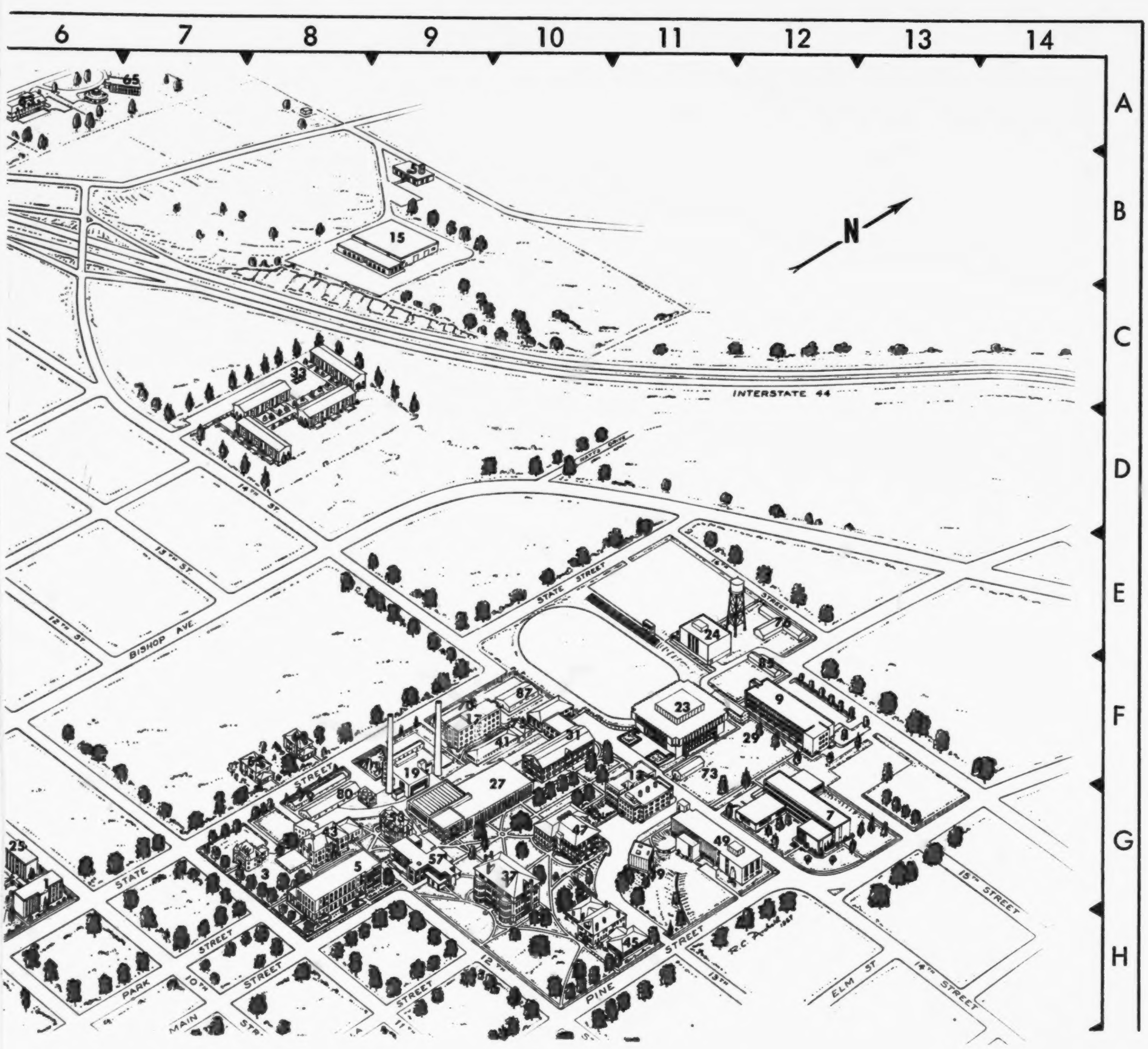
Considering that the University of Missouri - Rolla (beginning with the School of Mines and Metallurgy) has a long-established reputation for producing well-trained, professionally-oriented engineers and scientists at all degree levels, it would seem undesirable to endanger this accomplishment by any shift in the central focus of instruction. The Rolla campus will strive to continue its place among the strong, specialized basic physical science and engineering schools of the nation through concentration on improving and expanding the baccalaureate, master's, and doctoral programs in engineering and the physical sciences; developing a more comprehensive research program; and providing a wider service resource for student training.



Location of Rolla campus



UNIVERSITY OF MISSOURI - ROLLA



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Kansas City

the Kansas City campus

The University of Missouri - Kansas City was created in 1963, when the University of Kansas City merged with the University of Missouri. While the University of Kansas City received its charter in 1929 and opened its doors in 1933, it later acquired substantially older institutions: Dental College, established in 1881; College of Pharmacy, 1885; School of Law, 1895; and Conservatory of Music, 1907. A School of Business and Public Administration was added in 1953, a School of Education in 1954, and a Division of Continuing Education in 1958. Enrollment (FTE–1967-68) is at the 6,600 level.

Kansas City is a metropolitan area of 1.3 million population and a projected census of three million by 1990. There are several good but small liberal arts colleges in this urban center, and one is adjacent to the University of Missouri campus. Thus, the University of Missouri - Kansas City is an urban campus and currently is serving primarily a commuter student body.

The major campus of 85 acres (see map on pages 22 and 23) is located approximately 50 blocks south of downtown Kansas City in what is designated as the "cultural center" of the metropolitan area. The Conservatory of Music is eight blocks away at the northern edge of the center. Also in this center are the Nelson-Atkins Gallery of Art, Menorah Medical Center, Rockhurst College, Midwest Research Institute, Kansas City Art Institute, and the nationally prominent Linda Hall Library of Science and Technology. The School of Dentistry is not situated on the major campus. Dentistry presently is located adjacent to the downtown area, but a new building is under construction on Hospital Hill at 25th Street, where plans have been made for a large health and medical care complex.

The University of Kansas City was created and developed as a liberal arts institution, and the College of Arts and Sciences remains today as the cornerstone of the educational programs of the University of Missouri - Kansas City. This College of Arts and Sciences and the professional schools of the Kansas City campus are in the early stages of graduate study development; a well-rounded offering of graduate degrees to the Ph.D. level is a future objective. In 1964 the University established the School of Graduate Studies. Baccalaureate degrees currently available on the Kansas City campus are displayed in chart form in the appendix.

University of Kansas City	**chartered 1929**
Liberal Arts (College of Arts & Sciences)	**1933**
School of Law (established 1895)	**merged 1938**
School of Dentistry (established 1881)	**merged 1941**
School of Pharmacy (established 1885)	**merged 1943**
School of Business and Public Administration (School of Administration 1967)	**1953**
School of Education	**1954**
Division of Continuing Education	**1958**
Conservatory of Music (established 1907)	**merged 1959**
University of Missouri - Kansas City	**1963**
Graduate School	**1964**

EDUCATIONAL DEVELOPMENT ON THE UNIVERSITY OF MISSOURI - KANSAS CITY CAMPUS

The size of the full-time equivalent faculty (1968-69) gives some indication of the education and research efforts of the Kansas City campus:

Professors	**101**
Associate Professors	**105**
Assistant Professors	**106**
Instructors	**78**
Other Teaching and Research	**162**
Total Faculty	**552**

The University of Missouri - Kansas City has active research programs in the biological, social, and physical sciences, and in the humanities; they are supportive of its developing graduate degree offerings. The principal effort in the biological sciences is in ecology, dentistry, oral biology, and pharmacy. The social sciences and business administration have developed a considerable interest and an appreciable competence in the investigation of urban problems, particularly those of major concern to the Kansas City area. In the physical sciences, programs are developing in chemistry, polymer chemistry, mathematics, and physics. An exceptionally good program has been developed in the interpretative arts, including music and the theatre.

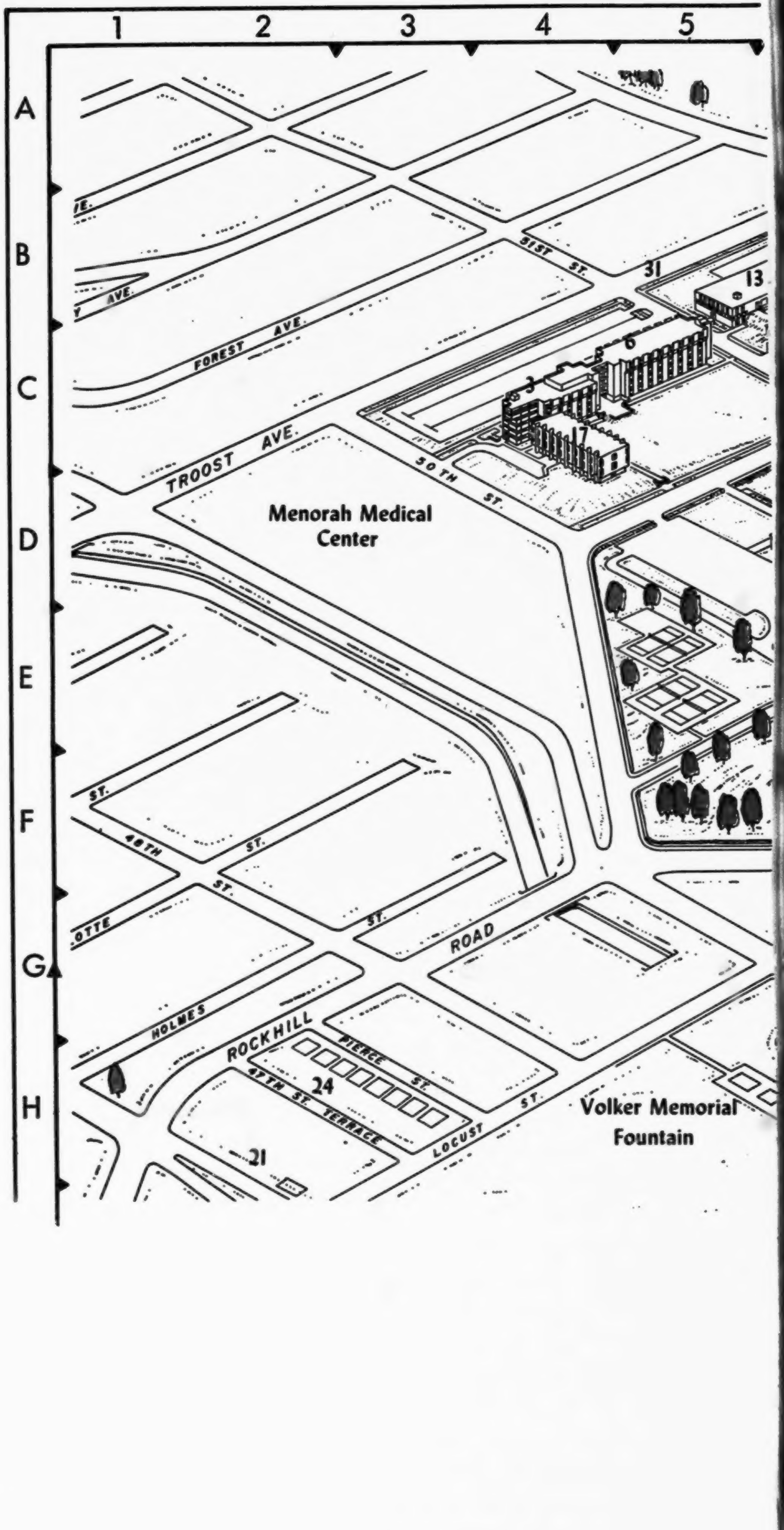
Because the Kansas City campus is surrounded by a large urban population, Extension has an important and somewhat difficult challenge. Perhaps its most significant contribution is in the area of continuing education, particularly for professional personnel. The rapidly accelerating accumulation of knowledge through scientific research is making it essential that many persons in many professions seek convenient means to continue their education throughout their career life. Of almost equal importance is the interface of the University with the mounting recognition of urban problems in such metropolitan areas as Kansas City. Extension shares with the academic departments of the urban campus the difficult job of helping to meet those needs while supplementing rather than distorting the University's primary purpose, which is education.

The future development of the Kansas City campus will follow the existing pattern of a close relationship with, and a dependence upon, the College of Arts and Sciences by the professional programs. A major thrust in the area of the health sciences will require continued cooperation between the Schools of Dentistry and Pharmacy and the related science departments of the College. The use of the Kansas City urban environment as a training and research testing laboratory for the social science departments of the College and the related activities of the Schools of Administration, Education, and Law will benefit both the educational programs of the University and the metropolitan area. The strength of the programs of the Conservatory of Music and the theatre and radio activities of the Speech and Theatre Department of the College are major cultural assets of the community and provide a locus of strength for quality development in the area of the fine arts.

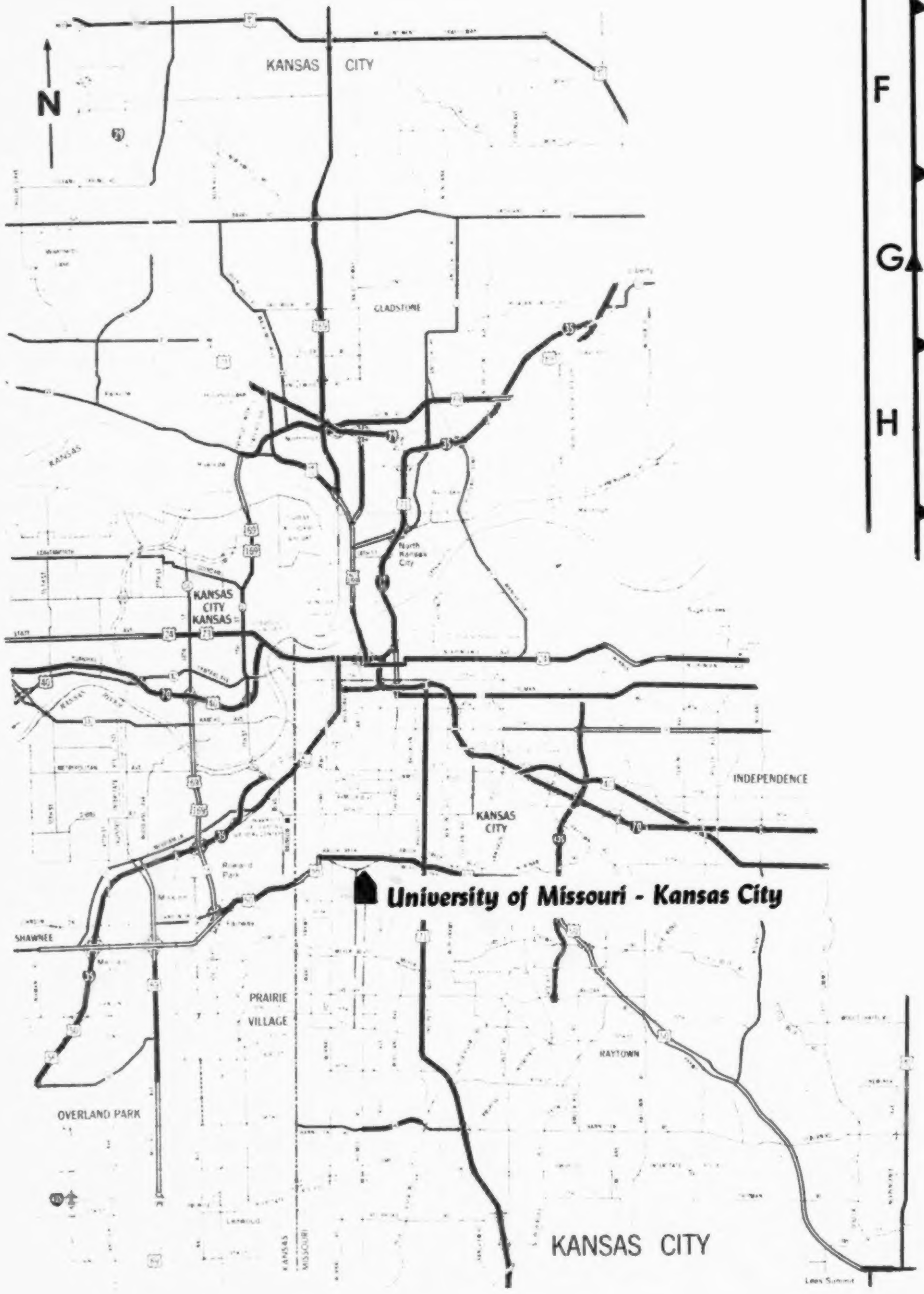
Although the University of Missouri - Kansas City should in time become a well-rounded complex of considerable size and reputation, it will pass through several intermediate stages, which will be of vital importance to the urban population it will serve. As an urban institution, its academic programs must first relate to the intermediate educational needs of the commuter students. Many of these needs will be in the area of the professions and will include baccalaureate, graduate, and continuing education programs. In support of these programs, there must be adequate study provided in arts and science and in the humanities.

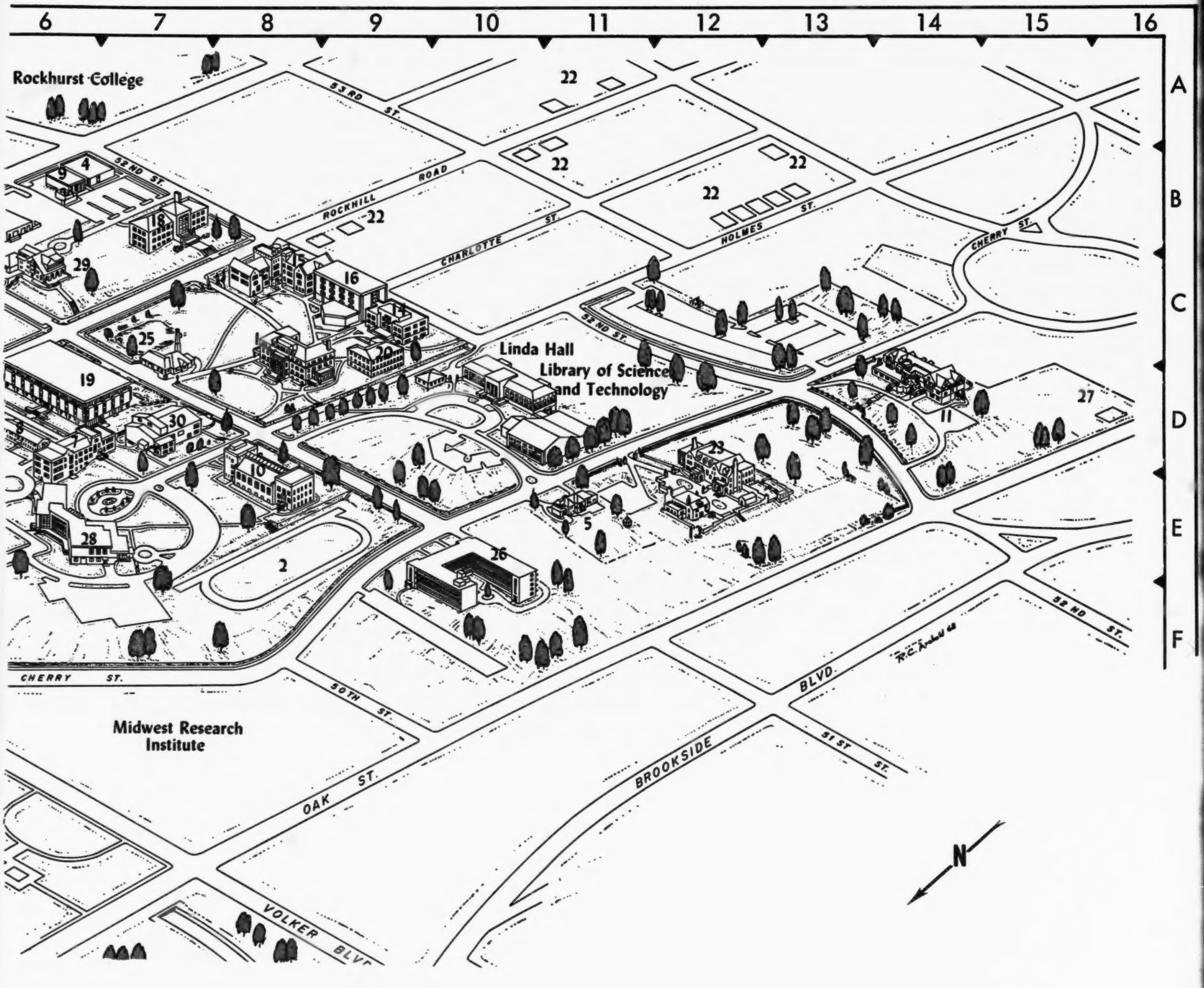
Eventually, the campus will face the introduction of entirely new areas or schools. Although the University will not locate a school of engineering on the Kansas City campus during the next 10 years, basic engineering courses will be offered by faculty of the School of Engineering at Columbia. The substantial emphasis placed on health education through the School of Dentistry and the School of Pharmacy will be expanded, and a school for allied health personnel is a possibility. Other educational programs requiring clinical populations or urban situations for student training will undoubtedly be found suitable for development. Thus, the Kansas City community has always looked favorably upon the broad area of the performing arts and will lend considerable attendance support to well-presented programs. The University of Missouri - Kansas City, therefore, could make a major contribution to the cultural life of the area by developing an outstanding program in the performing arts.

Because the Kansas City campus is situated in a large and growing metropolitan area, the University of Missouri - Kansas City may eventually become an institution of considerable size and national visibility. The University is also aware that this objective lies somewhat in the future and will make certain that the educational programs offered in the intervening period are needed by the urban population and are of appropriately high quality. In this way, the University of Missouri - Kansas City can best accommodate both the short- and long-run educational needs of the Kansas City metropolitan area.



Location of Kansas City campus at Volker Blvd. and Rockhill Rd.





UNIVERSITY OF MISSOURI - KANSAS CITY

WILLIAM VOLKER CAMPUS

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Academic work in Conservatory and Dentistry conducted at:

Conservatory of Music	4420 Warwick Blvd.
School of Dentistry	Troost at 10th Street

Liberal Arts (College of Arts & Science)	1839
Normal College (College of Education)	1868
College of Agriculture and Mechanic Arts	1870
School of Medicine	1872
School of Law	1872
School of Engineering	1877
Nursing Instruction	1901
School of Journalism	1908
Graduate School	1910
School of Business and Public Administration	1914
School of Nursing	1920
School of Veterinary Medicine	1949
School of Forestry	1957
School of Home Economics	1960
Extension Division	1960
School of Social and Community Services	1965
School of Library and Information Science	1966

EDUCATIONAL DEVELOPMENT ON THE UNIVERSITY OF MISSOURI - COLUMBIA CAMPUS

the Columbia campus

The growth of educational offerings on the Columbia campus during the past 129 years is indicated by the dates at which schools and colleges were established (given in the accompanying table, opposite page.)

This campus is situated in Columbia, which has a current population of about 52,000, including students from Stephens College, Christian College, and the University of Missouri. Columbia, centrally located in Missouri, is about 125 turnpike miles west of St. Louis and east of Kansas City. The campus, including farm lands, covers over 3,000 acres, of which about 800 acres constitute the main campus in the center of Columbia. In addition to the many buildings housing administration, teaching, and research programs, there are numerous student residence halls; sorority and fraternity houses; a student union and commons; and a stadium, gymnasium, and other athletic facilities. In sum, the Columbia campus contains nearly all of the elements of a long established, self contained, and relatively complete land-grant university. Enrollment in 1967-68 was about 19,000 students. (A sketch of the campus is shown on the following page.)

Over the years, the Columbia campus has been developed to serve the university-type public higher educational needs of the entire state. Its basic undergraduate, professional, and graduate degree programs are designed to produce graduates who are well grounded in the various facets of their areas of interest. This is accomplished by interrelating the extensive offering of academic programs and by making available a wide spectrum of graduate study. The appendix contains a chart which shows the areas in which baccalaureate and graduate degrees are offered by the Columbia campus.

An indication of the size of the teaching and research programs on the Columbia campus can be gained from a listing of the full-time equivalent faculty (1968-69) by professional rank:

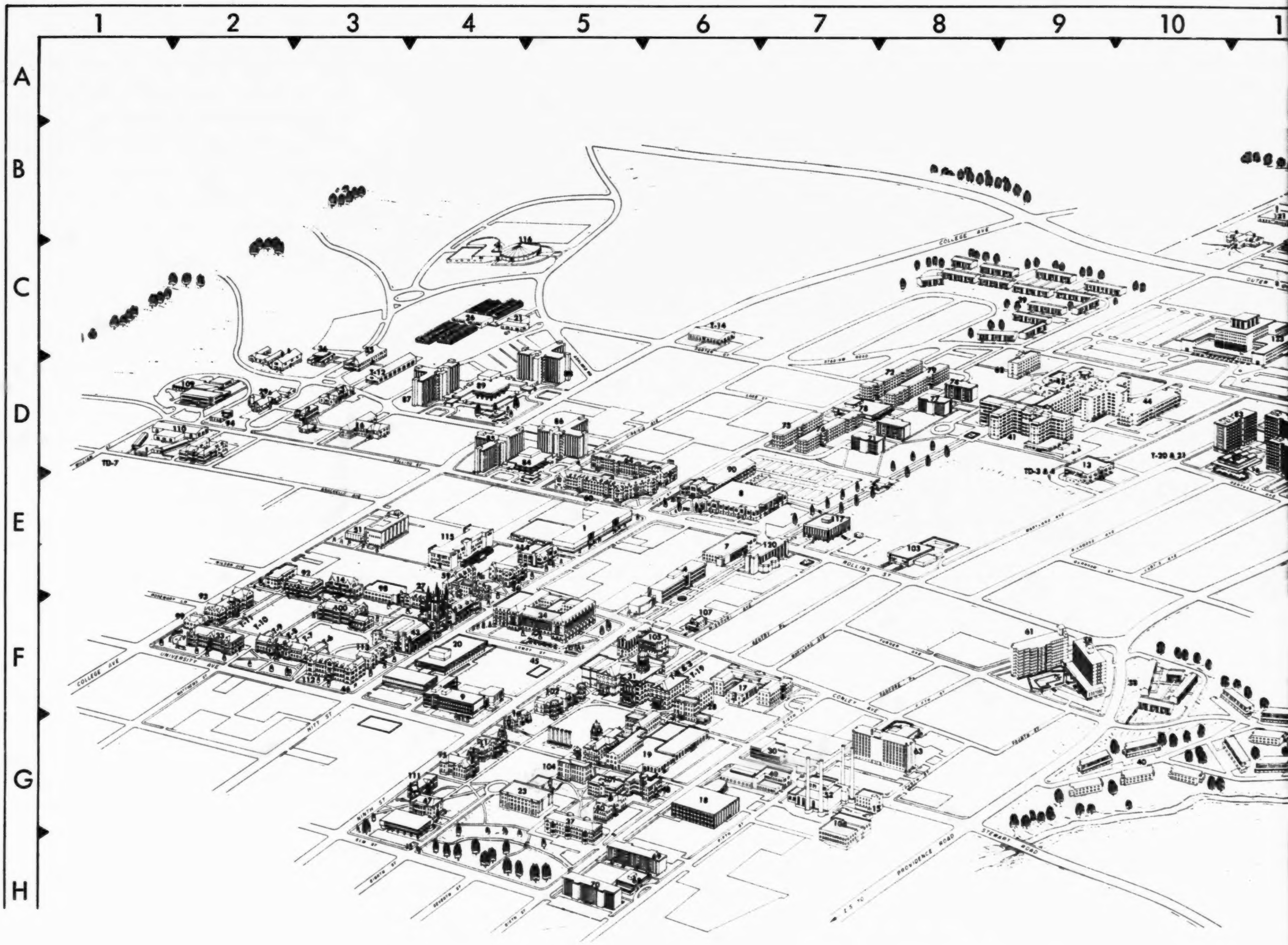
Professors	373
Associate Professors	336
Assistant Professors	396
Instructors	326
Other Teaching and Research	699
Total Faculty	2,130

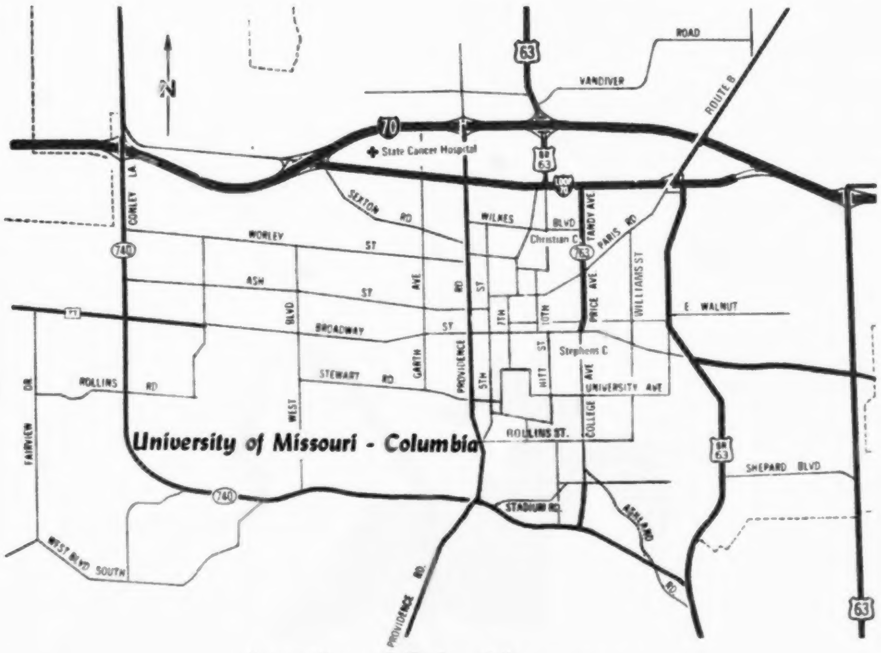
The University of Missouri - Columbia has important research programs in the biological, social, and physical sciences and in the humanities. These programs are conducted by faculty in Arts and Science, Agriculture, Business and Public Administration, Education, Engineering, Journalism, Law, Medicine, and Veterinary Medicine. Because of the unusual grouping on one campus of these schools and colleges, there exists an exceptional opportunity for multidisciplinary approaches to many problems. For example, the professional degree programs require basic study in the arts and sciences, and programs such as mental retardation and rehabilitation need combinations of courses from several schools. Interdisciplinary cooperation is also essential in many areas of research and service, as in comparative medicine, bioengineering, and the Missouri Regional Medical Program, which is concerned with discovering better ways to deliver adequate health care to the Missouri population at risk to heart disease, cancer, and stroke.

Because of the professional schools located on the Columbia campus, Extension is playing a very significant role in the development and presentation of programs in continuing education. In 1960 the University of Missouri became the first of the land-grant universities to combine cooperative agriculture extension activities with those of all other units and divisions of the University. The rapidly expanding fields of knowledge have made it absolutely essential for most professional persons to renew their formal education at increasingly shorter intervals of time, and Extension is striving to meet this challenge.

The Columbia campus will continue the development and refinement of its present program and will remain the University's major resident campus with statewide orientation. As a comprehensive campus, it contains various professional programs, such as Agriculture, Veterinary Medicine, Forestry, Home Economics, and Journalism, that will not be duplicated elsewhere in the coming decade. Admission requests will increase and all qualified applicants will be accommodated. Important steps have been and will continue to be taken to protect and improve undergraduate education. Considerable development is anticipated in academic programs that encompass two or more disciplines, professions, and science categories, such as bioengineering and a school of public health. Graduate study will be improved and expanded significantly to accommodate the projected increase of graduate students and the ever widening frontiers of knowledge.

Thus, the University of Missouri - Columbia in 1978 should be somewhat larger, should have improved baccalaureate and graduate instruction, and should have programs that are better integrated and that are strong in continuing education, graduate study, and research.





Location of Columbia campus

Index to buildings

1.	Agriculture	E-5
2.	Agric. Engineering	D-3
3.	Agric. Engineering Lab	D-3
4.	Arts & Science	E-6
5.	Athletic Dressing Rooms	E-15
6.	Baseball Bleachers	D-17
7.	Brady Commons	E-6
8.	Brewer Field House	E-6
9.	Business & Public Admin.	F-4
10.	Chancellor's Residence	G-5
11.	Chemistry	G-4
12.	Connaway	D-2
13.	Crowder	D-9
14.	Curtis	E-3
15.	Data Processing	G-8
16.	Eckles	D-3
17.	Education	F-7
18.	Electrical Engineering	G-6
19.	Engineering	G-6
20.	Fine Arts	F-4
21.	Fire Training	C-5
22.	General Services	B-12
23.	Geology	G-5
24.	Golf Course Club House	E-20
25.	Golf Course Maintenance	D-19
26.	Greenhouses	C-4
27.	Gwynn	F-4
28.	Hill	F-6
29.	Horse Barn	D-2
30.	Industrial Education	G-7

31. J
32. K
33. L
34. L
35. L
36. L
37. M

MARR
38
39
40

MEDIC
41
42
43. M
44. M
45. M
46. M
47. N
48. N
49. N
50. P
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52. P
53. P
54. P
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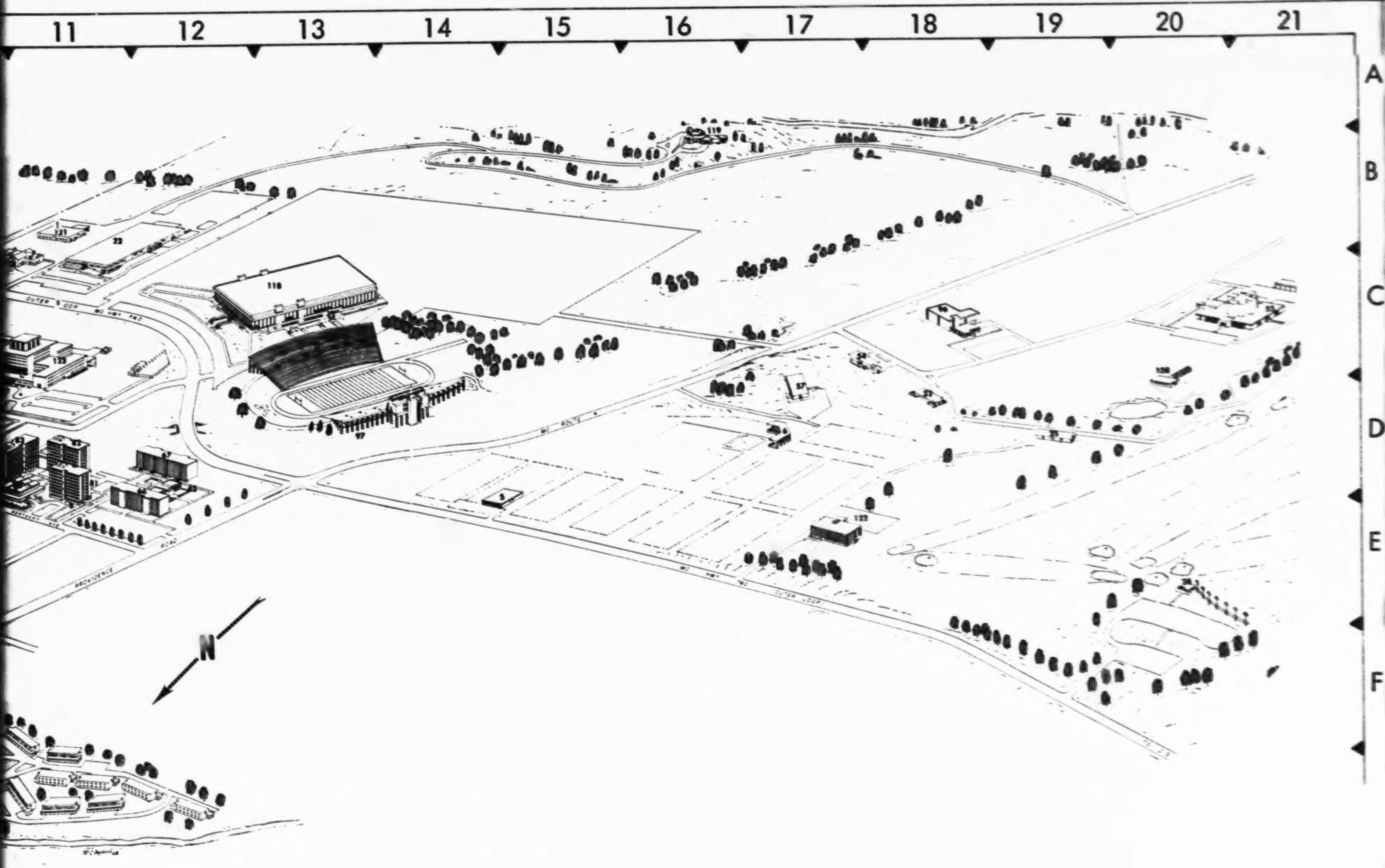
57. R



UNIVERSITY OF MISSOURI - COLUMBIA

31. Jesse	F-6
32. Kennels (Animal House)	D-18
33. Lefevre	F-2
34. Library, General	F-5
35.* Livestock Pavilion	C-3
36. Low Level Radiation Lab	C-3
37. McAlester	G-5
MARRIED STUDENT HOUSING	
38. Univ. Heights, Providence Rd.	F-10
39. Univ. Terrace, Stadium Rd.	C-9
40. Univ. Village, Providence Rd.	G-10
MEDICAL CENTER	
41. Medical Sciences	D-9
42. Teaching Hospital	D-9
43. Memorial Union & Green Chapel	F-4
44. Mid-Mo. Mental Health Center	D-10
45. Missouri School of Religion	F-5
46. Mumford	F-3
47. Neff & Annex	G-4
48. Noyes Hospital	G-6
49. NROTC	G-7
50. Parker	G-5
51. Physics	E-3
52. Power Plant	G-7
53. Professional Bldg.	G-4
54. Psychology Animal Research	C-18
55. Reactor Facilities	C-21
56. Read	E-5
57. Research Park Development	D-17
RESIDENCE HALLS	
58. Clark (privately owned)	F-9
59. Gentry (women)	E-4
60. Johnston (women)	E-5
61. Lewis (privately owned)	F-9
62. McHaney (women)	D-9
63. Mark Twain (privately owned)	G-8
64. Wolpers (women)	D-6
MEN'S BLAIR GROUP	
65. Blair (Cafeteria)	D-12
66. Donnelly	D-12
67. Smith	D-12
MEN'S LOEB GROUP	
68. Loeb (Cafeteria)	H-6
69. McDavid	H-6
70. McReynolds	H-5
MEN'S PERSHING GROUP	
71. Baker-Parker	D-8
72. Cramer	D-8
73. Defoe	D-7
74. Dockery-Folk	D-8
75. Gardner-Hyde	D-8
76. Graham	D-7
77. Hadley-Major	D-8
78. Pershing (Cafeteria)	D-8
79. Stafford	D-8
WOMEN'S DOBBS GROUP	
80. Dobbs (Cafeteria)	D-11
81. Jones	D-11
82. Lathrop	D-11
83. Laws	D-11
BINGHAM GROUP	
84. Bingham (Cafeteria)	D-5
85. Hatch (men)	D-4
86. Schurz (women)	D-5
ROLLINS & VIRGINIA GROUP	
87. Hall A (men)	D-4
88. Hall B (women)	D-5
89. Hall C (cafeteria)	D-4
90. Rothwell	E-6
92. Schlundt & Annex	E-3
93. Schweitzer	F-2
94. Slaughter House	D-2
95. Sociology	G-4
96. Space Sci. Research Cent.	C-18
97. Stadium	D-14
98. Stanley	F-3
99. Stephens	F-2
100. Stewart	F-3
101. Student Health Center	G-5
102. Swallow	F-5
103. Swimming Pool (men)	E-8
104. Switzler	G-5
105. Tate	F-6
106. Tech. Educ. Services	H-7
107. Traffic Safety & Security	F-6
T-2 & 3 Research in Soc. Behavior	F-6
T-6 Soils; Climatology	F-3
T-7 State Soil & Water; Ag. Ed.	F-3
T-8 Genetics	F-3
T-9 Field Crops	F-2
T-10 Botany Labs	F-2
T-11 Zoology	F-2
T-12 Agric. Engineering	D-3
T-14 Poultry	C-6
T-19 Aptitude & State-Wide Testing	F-6
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TD-3 & 4 Med. Center Offices	E-9
TD-7 Mo. Cons. Comm.; Pub. Hlth.	D-1
108. USDA Biol. Cont. of Insects	D-20
109. Veterinary Clinic	D-2
110. Veterinary Science	D-2
111. Walter Williams	G-4
112. Waters	F-3
113. Whitten	F-3
114. Women's Gym	E-5

Recent buildings

115. Biological Sciences	E-4
116. Livestock Pavilion (new)	C-5
117. Mathematics & Computer Science	E-7
118. Multipurpose Bldg.	C-13
119. President's Residence	B-16
120. Social Sciences	E-7
121. University Garage	B-11
122. University-wide Administration	E-17
123. Veterans Admin. Hospital	C-11

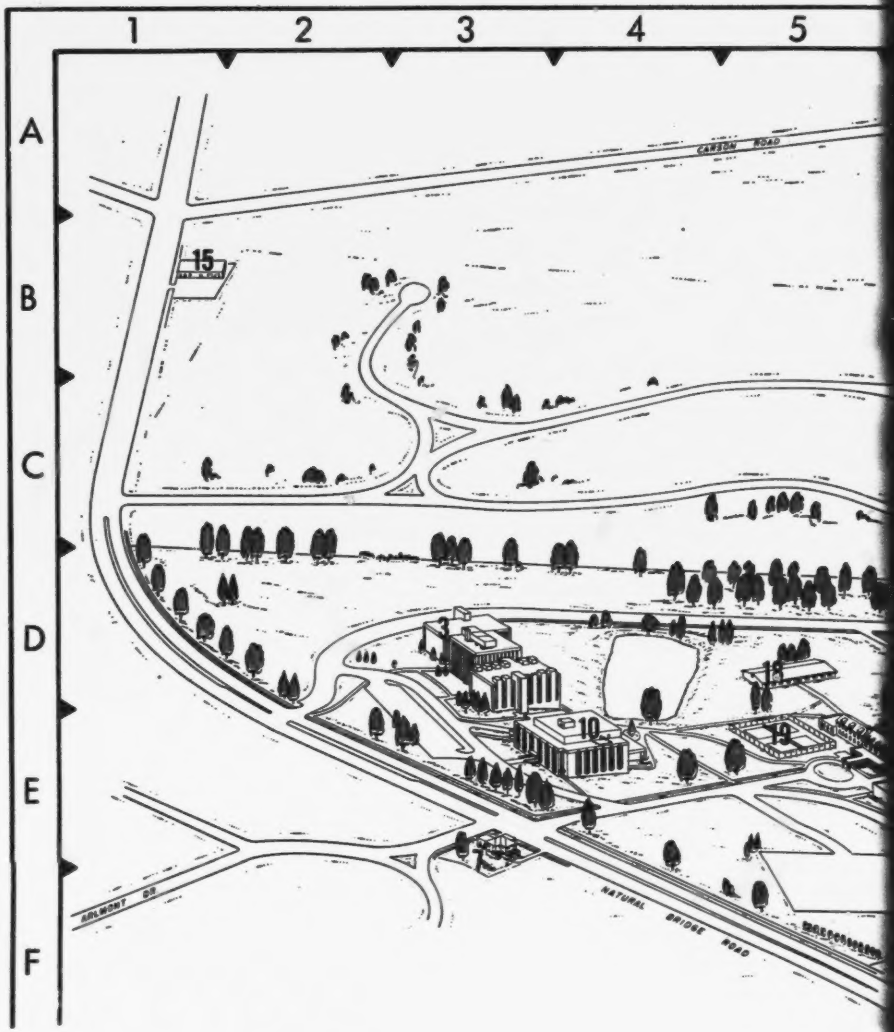
St. Louis
●

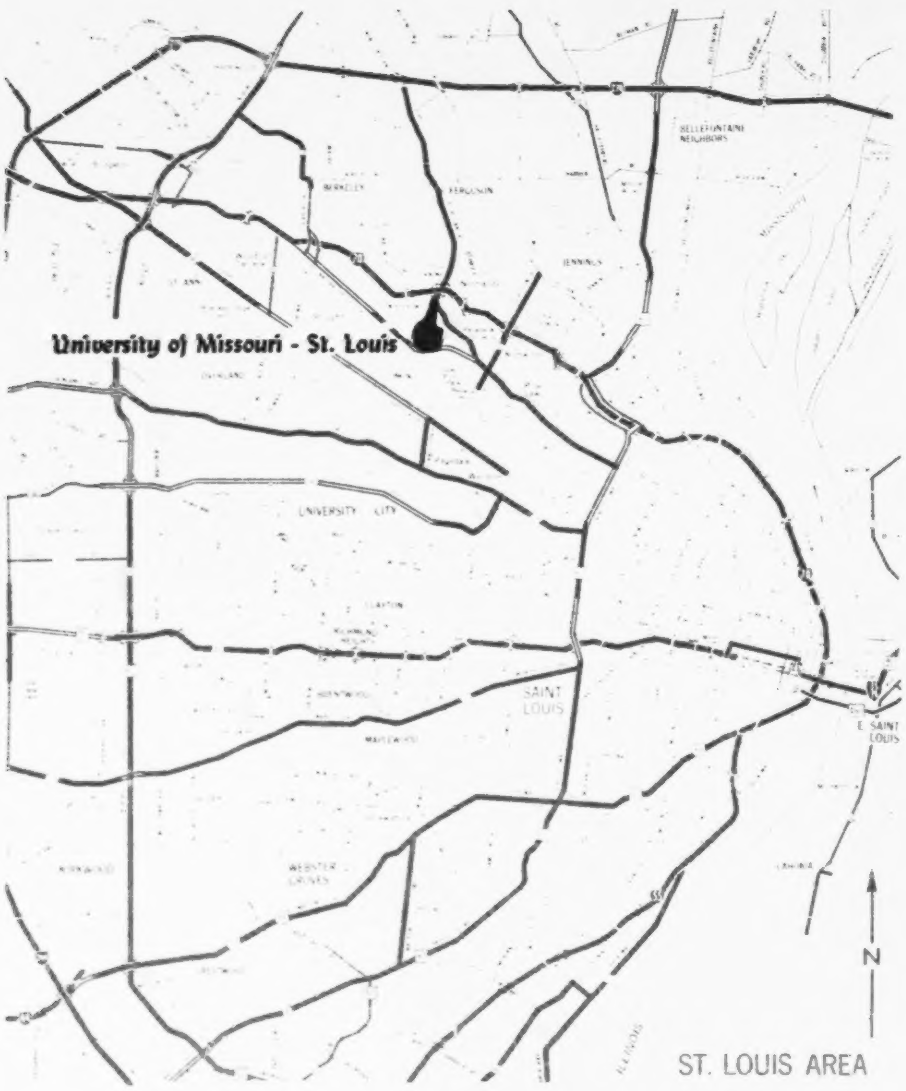
the St. Louis campus

The University of Missouri - St. Louis was established in 1960 as a two-year college through the joint efforts of the University and the Normandy School District. In 1963 it became a four-year institution and one of the four campuses of the University of Missouri. Presently 5,300 FTE (1967-68 enrollment) students are being taught in four permanent-type buildings on this entirely new

Normandy Residence Center of the University of Missouri	**1960**
University of Missouri - St. Louis	**1963**
Division of Extension	**1963**
College of Arts and Sciences	**1963**
University Evening College	**1964**
School of Education	**1966**
School of Business Administration	**1967**

EDUCATIONAL DEVELOPMENT ON THE UNIVERSITY OF MISSOURI - ST. LOUIS CAMPUS





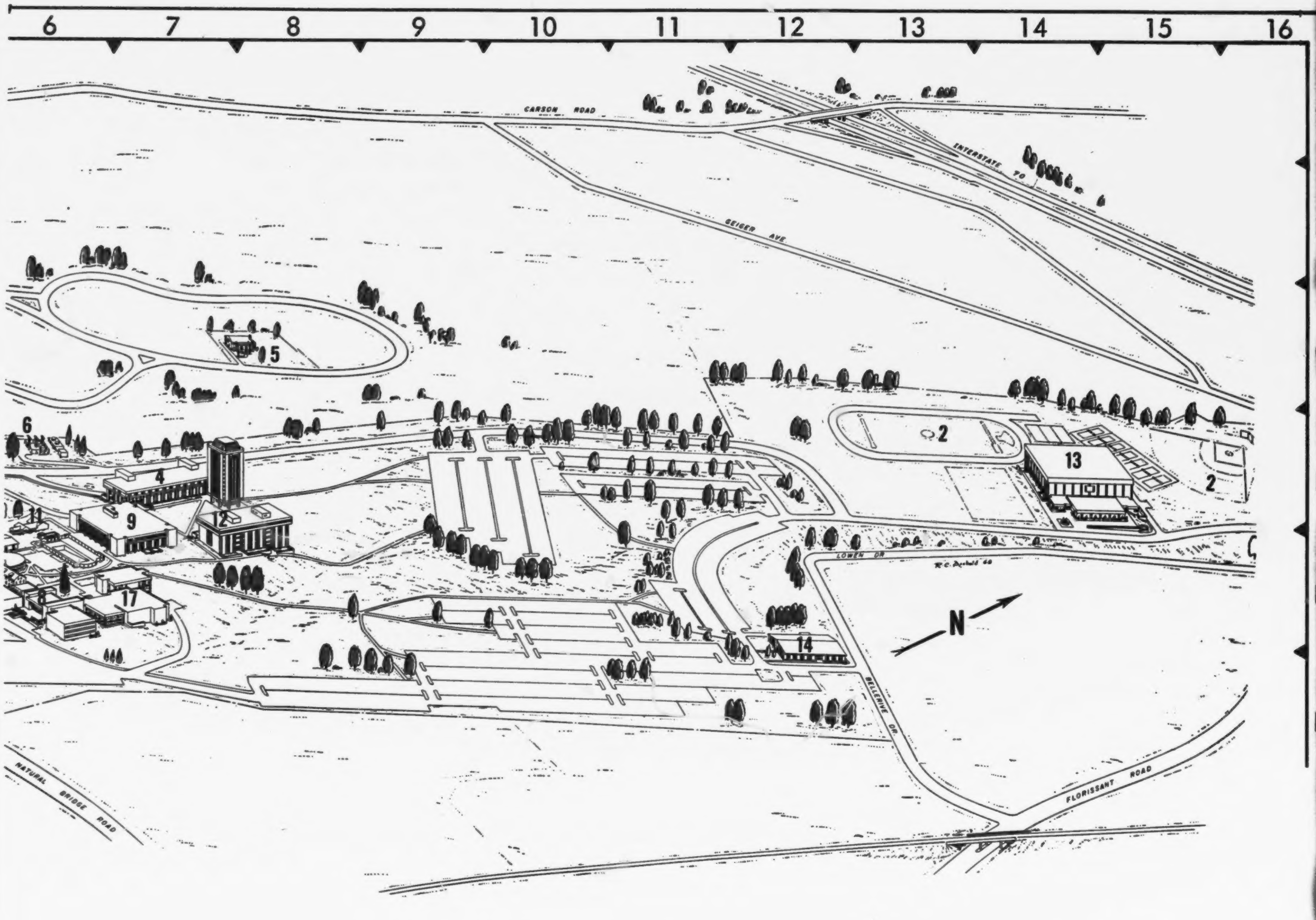
Location of St. Louis campus

Index to buildings

1.	Administration Bldg.	E-5
2.	Athletic Field	D-13 & 15
3.	Benton Hall	D-3
4.	Business & Education	D-7
5.	Chancellor's Residence	C-8
6.	Cooling Plant	D-6
7.	Education (temporary)	E-3
8.	J.C. Penney Bldg. (Cont. Educ.)	E-6
9.	Library	D-7
10.	Life Sciences	E-4
11.	Maintenance Bldg.	D-6
12.	Mathematics & Languages	E-8
13.	Multipurpose Bldg.	D-14
14.	Office Bldg.	E-12
15.	Physical Plant	B-1
16.	Student Lounge	E-6
17.	Student Union	E-7
18.	Temporary Office Bldg.	D-5
19.	Tennis Courts	E-5

campus, a 132-acre site in a residential section of the St. Louis metropolitan area. (See sketch on this page.) Ninety-eight percent of the students enrolled are from the St. Louis metropolitan area, which in 1965 had an estimated population of 2,249,000 and a projected census for 1980 of 2,988,000. In addition to several small private colleges and a three-campus Junior College System, there are two major private universities (St. Louis University and Washington University) in the metropolitan area.

Because the St. Louis campus is in the initial stage of its development, most of its growth in faculty, capital improvements, academic and research programs, and student enrollment lies ahead. However, in the short period of its ex-



UNIVERSITY OF MISSOURI - ST. LOUIS

istence, it has made considerable progress in all areas, and a significant amount of essential planning has been completed. Currently, there are the College of Arts and Sciences, the Schools of Business Administration and Education, the Evening College, and a Division of Extension. New facilities under construction or already authorized include a life sciences building, a social science-business-education complex, a physical education multipurpose building, a student union, and an adult education building. The number of full-time equivalent faculty by rank (1968-69) is:

Professors	**33**
Associate Professors	**53**
Assistant Professors	**102**
Instructors	**122**
Other Teaching and Research	**9**
Total Faculty	**319**

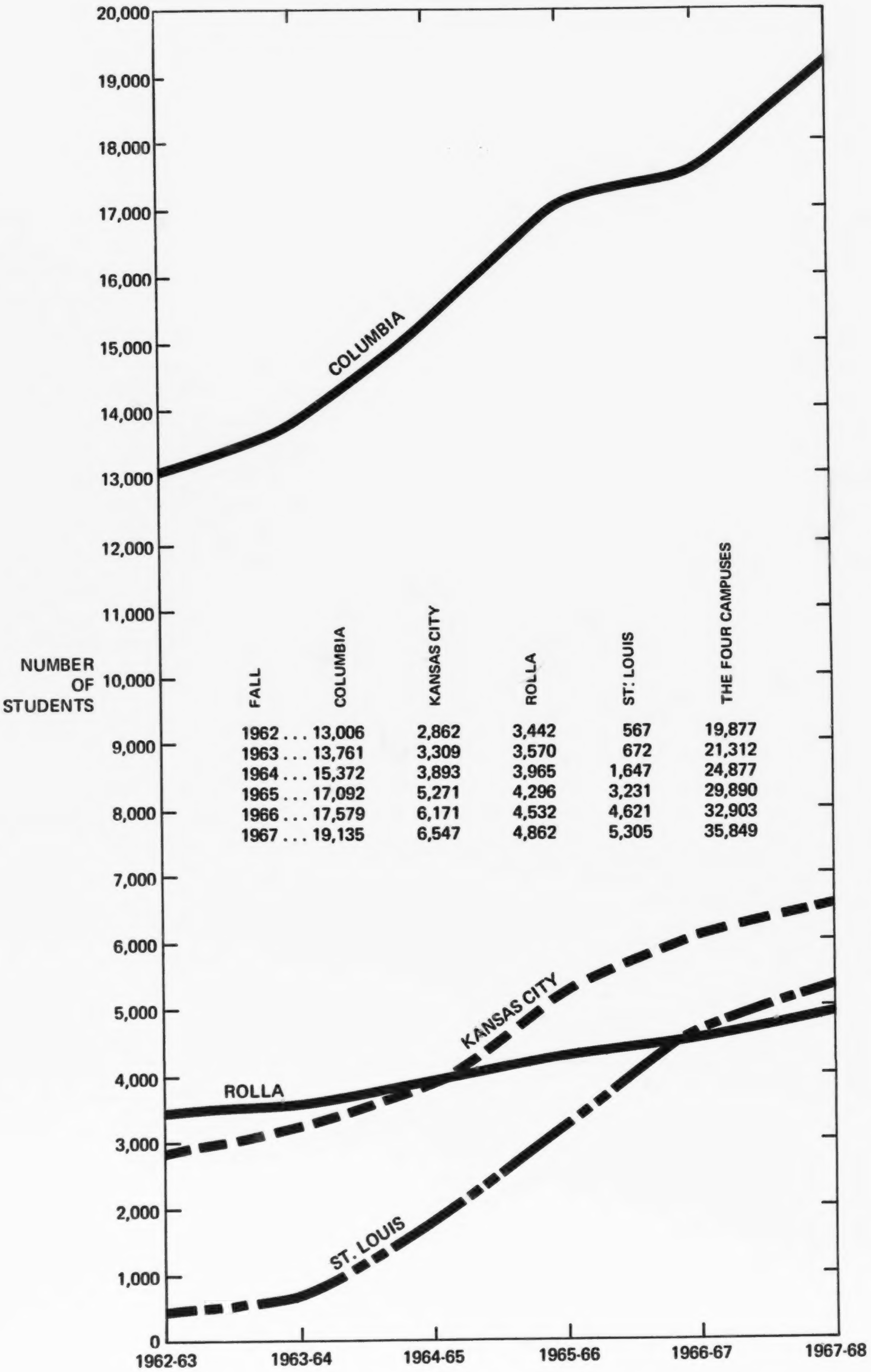
Graduate study on the St. Louis campus is in the beginning stage and is currently limited to a master's degree in Education. Additional graduate-degree programs will be developed in the social sciences–economics, sociology, political science, history–and business administration, with master's degree programs probably beginning in these disciplines as early as the fall semester of 1969. Graduate study in the physical sciences and humanities is on the drawing board. Programs at the Ph.D. level will be offered in the basic arts and sciences as resources permit and demand can be demonstrated. The development of graduate study and research is absolutely essential to satisfactory growth of baccalaureate programs on the St. Louis campus. The recruitment and retention of a quality university faculty is now possible only in an atmosphere of advanced study and basic investigation. This atmosphere will be developed as rapidly as resources can be made available.

A strong research program is underway in all areas of Arts and Sciences, Business, and Education. A major emphasis will be placed upon the solutions of problems of the urban community and upon research programs which contribute to international understanding.

Extension on the St. Louis campus has been concerned with developing continuing education for the many professional disciplines and with serving as the interface between the University of Missouri and the St. Louis urban community. These programs will expand considerably as the campus grows. Expansion of the present graduate-degree programs in engineering into the undergraduate level will receive early consideration. Although the University will not locate a school of engineering on the St. Louis campus during the next 10 years, graduate-degree programs will continue to be offered by faculty from the Rolla campus, who will also teach whatever basic undergraduate engineering courses are provided.

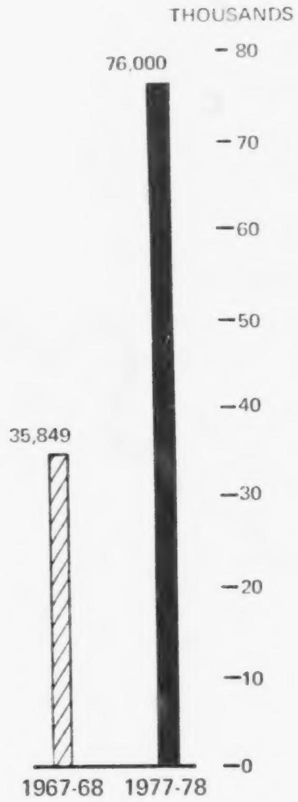
The University of Missouri - St. Louis provides an opportunity to guide the development of an outstanding institution of higher education that is focused on the academic needs of a very large urban population. Unfettered by past mistakes, there is present the possibility of accommodating the urgent admission demand, together with a high-quality educational program, and the rate of growth will be determined primarily by the availability of resources. Careful planning and a rigid adherence to quality programs are being pursued, so that the campus may exploit fully the exceptional opportunities that exist in the metropolitan area and also may avoid the pitfalls that surround necessary developmental speed.

The University of Missouri feels it should not place any arbitrary restrictions on the ultimate size and composition of the St. Louis campus at this time. Development will be orderly, will accommodate the most urgent needs first, and will offer a complex of high-quality academic programs at a rate that is consonant with available funding resources. Basic arts and sciences and fine arts will be developed on a program costing basis as resources can be advanced. The fields of allied health sciences, business administration, education, and urban studies will be developed in response to the needs of the community. Schools of dentistry, law, pharmacy, or medicine are not a part of the plans for the next 10 years. During the next decade, the campus should develop to a degree which will provide a clearer and more specific blueprint of its ultimate structure.



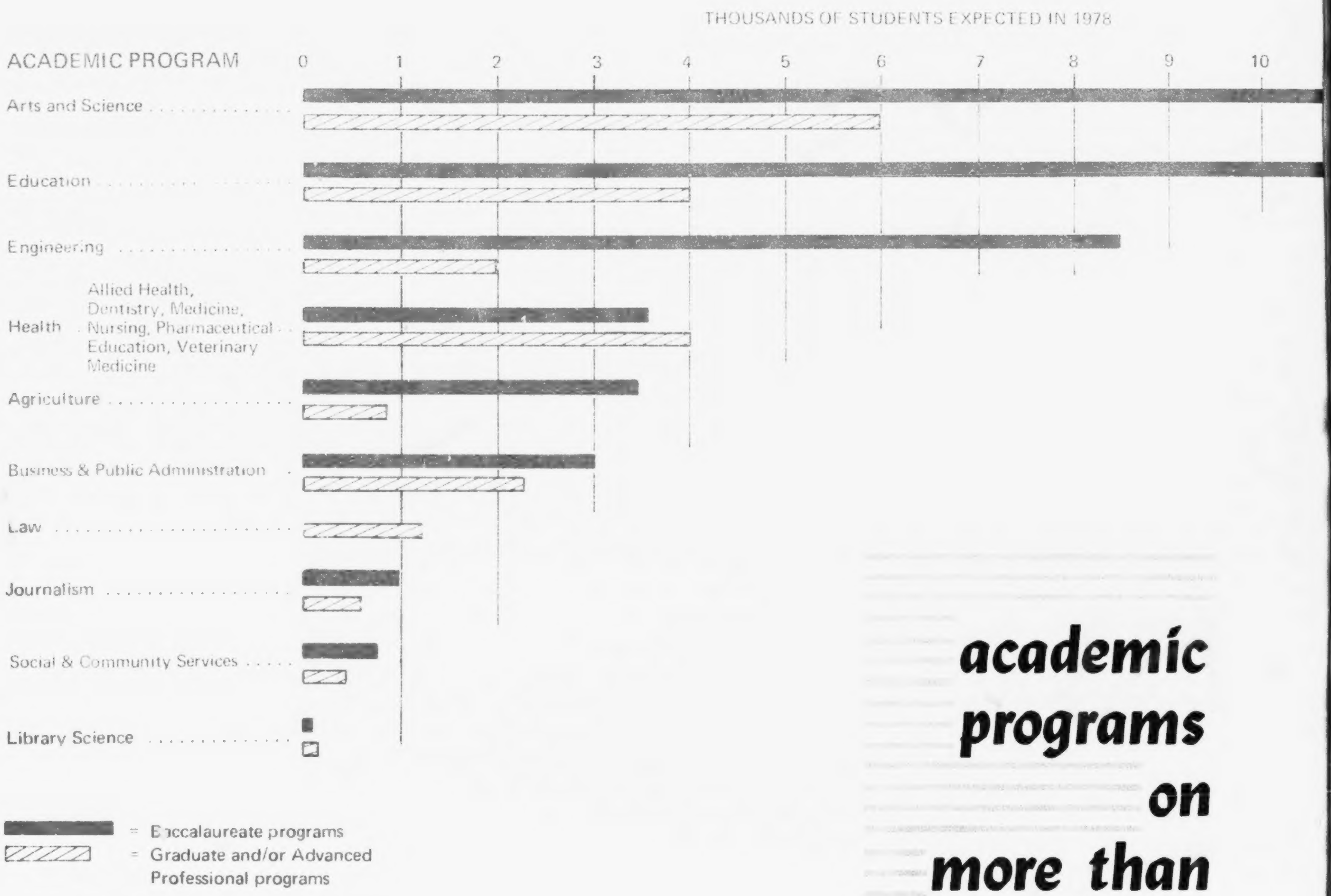
FALL	COLUMBIA	KANSAS CITY	ROLLA	ST. LOUIS	THE FOUR CAMPUSES
1962 . . .	13,006	2,862	3,442	567	19,877
1963 . . .	13,761	3,309	3,570	672	21,312
1964 . . .	15,372	3,893	3,965	1,647	24,877
1965 . . .	17,092	5,271	4,296	3,231	29,890
1966 . . .	17,579	6,171	4,532	4,621	32,903
1967 . . .	19,135	6,547	4,862	5,305	35,849

ENROLLMENT (FULL-TIME EQUIVALENT) ON UNIVERSITY OF MISSOURI CAMPUSES, 1962-63 TO 1967-68



TOTAL ENROLLMENT (FTE) AT THE UNIVERSITY OF MISSOURI (ALL FOUR CAMPUSES) – 1967-68 AND 1977-78 (PROJECTED)

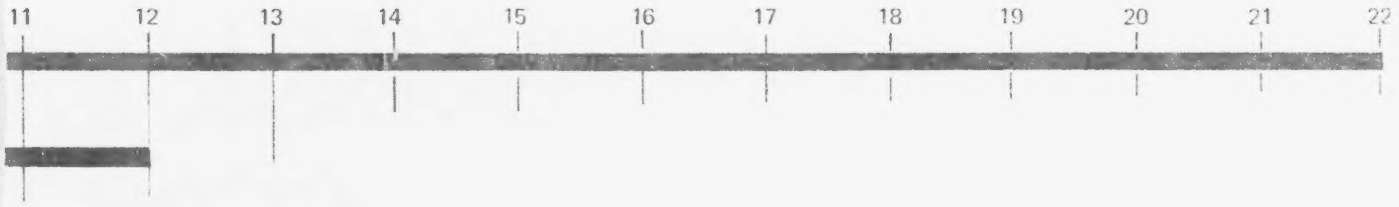
ACADEMIC PROGRAMS

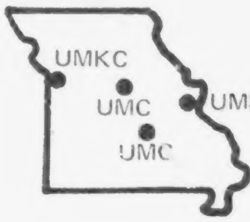


PROJECTED ENROLLMENT IN ACADEMIC PROGRAMS AT THE UNIVERSITY OF MISSOURI . . . 1978

academic programs on more than one campus

The "projections" of enrollment through the next 10 years under the various academic disciplines (agriculture, business and public administration, education, etc.) are the best estimates of the divisional deans and other experts in the respective fields.





Present and future programs in arts and science on all four campuses

ARTS AND SCIENCE

overview

Education in the arts and sciences has an illustrious history that reaches back to the earliest institutions of higher education when the totality of man's knowledge could be presented in a limited number of basic courses. Today, the liberal arts colleges and the universities' schools of arts and science are the literal descendants of this basic approach to higher education; they remain the cornerstone of the University. The courses now taught in the liberal arts colleges and the schools of arts and science constitute the hard core basic knowledge which man has painstakingly assembled about himself and the world around him. Among the institutions of higher learning, this hard core instruction performs several fundamental functions. For those students whose higher education will terminate with the non-professional baccalaureate degree, the arts and science education must prepare them for the series of roles they will occupy throughout their lives. For those students who will seek professional degrees, the arts and science courses form an essential base upon which the professional education must build. It is the arts and sciences that prepare all students to become contributing members of our society and that provide the base upon which the student can continue his education through life.

present program

It is customary to divide the programs usually found under arts and science into the three categories: humanities, social sciences, and natural sciences. The table on page 34 shows the degree programs now taught somewhere within the University of Missouri under these three categories.

Under these arts and science programs, 1,048 baccalaureate, 395 master's, and 109 doctoral degrees were granted in 1967.

demand

The demand for arts and science education programs is partly direct and partly derived. It is direct for those students who will not continue their formal education after the baccalaureate degree in arts and science. It is derived for those students seeking professional degrees and for those who will enter graduate study leading to the master's and doctoral degrees. The direct demand is supported by the increasing importance society is placing upon a college education. Thus, the number seeking admission to universities and colleges is rising because of the population increase and because a larger portion of high school graduates can and do seek a college education. More and more, industry, business, and the professions are requiring the baccalaureate and ad-

ARTS AND SCIENCE, CURRENT DEGREE PROGRAMS—UNIVERSITY OF MISSOURI, 1967

(B=Bachelor's, M=Master's, D=Doctorate)

Humanities			
Art	B	M	
Archaeology & Art History	B	M	D
Classical Language	B	M	D
English	B	M	D
French	B	M	D
German	B	M	
Linguistics	B	M	
Music	B	M	
Philosophy	B	M	D
Russian	B		
Spanish	B	M	D
Speech & Dramatic Arts	B	M	D
Social Sciences			
American Civilization	B	M	D
American Culture	B		
Anthropology	B	M	D
Engineering Management and Administration (to Engineering 7/1/68)	B	M	
Economics	B	M	D
French Civilization	B	M	
History	B	M	D
Home Economics (A. & S. Only)	B		
Latin American Studies	B	M	
Political Science	B	M	D
Psychology	B	M	D
Social Psychology		M	
Social Work	B	M	
Sociology	B	M	D
South Asian Studies	B		
Soviet Studies	B		
Sciences			
Chemistry	B	M	D
Computer Science	B	M	D
Geography	B	M	
Geology	B	M	D
Geophysics	B	M	D
Library Science	B	M	
Life Science			
Biology	B	M	
Botany	B	M	D
Microbiology	B	M	D
Zoology	B	M	D
Mathematics	B	M	D
Applied Mathematics	B	M	D
Meteorology		M	D
Physics	B	M	D
Engineering Physics			D
Statistics	B	M	D

vanced degrees for entrance into, and advancement within, the business concern or profession.

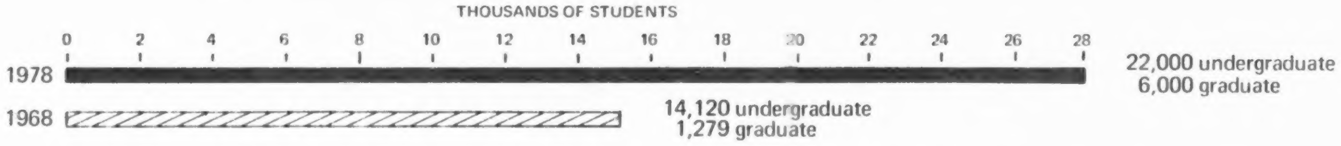
The composite demand, direct and derived, for arts and science educational programs is very strong and should remain so throughout the foreseeable future.

supply

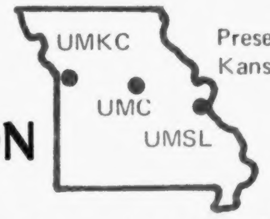
The present demand for college-trained personnel from all sectors of society is quite strong, and the supply of college graduates, although growing, remains somewhat below the overall demand. However, the supply of qualified students seeking admission to colleges and universities is demonstrating substantial growth; in the near future all students who have the capabilities for completing a college course of study undoubtedly will be seeking admission to some institution of higher education. It is to the advantage of society to see that none of these students is denied admission.

projection

It is difficult to arrive at a precise estimate of future enrollments in arts and science educational programs because of the complex nature of the demand factor. However, it seems reasonable to expect that by 1978 the University of Missouri will have an enrollment of 22,000 students in baccalaureate programs and 6,000 seeking the master's and the doctoral degrees in arts and science programs. This growth will be primarily on the Columbia, Kansas City, and St. Louis campuses and in the physical sciences at Rolla.



ENROLLMENT IN ARTS AND SCIENCE PROGRAMS AT THE UNIVERSITY OF MISSOURI—1968 AND 1978 (PROJECTED)



Present and future programs on Columbia, Kansas City, and St. Louis campuses

BUSINESS AND PUBLIC ADMINISTRATION

overview

The tremendous size and complexity of modern business, industry, and government have created a demand for competent management that remains in continually short supply in spite of the combined efforts of the nation's schools of business and public administration. The principles of good management are applicable to a variety of activities such as engineering, industry, education, government, health and medical care, banking, commerce, and agriculture. Consequently, management courses are usually combined with other areas of study, so that the student has a basic knowledge of the activity to be administered. Thus, the academic program of the school of business and public administration is integrated with the programs of other schools and includes fundamental courses in arts and science.

Although administration and management function at all levels of organization, it is top management that in recent years has increasingly relied upon the university to supply its needs, and graduate education has been the natural recipient of this rising demand. At the other extreme, the school of business faces a problem that is familiar to all schools, which is defining the areas that are to be excluded from its programs. While the current trend of many university programs is toward graduate programs that prepare and retrain students for higher management positions, there continues to be a need for programs that prepare students for various roles in special fields such as accounting, investment, real estate, and insurance.

present program

The program in business and public administration at the University of Missouri is expanding and evolving. Student enrollment in the baccalaureate program is steadily rising, and a substantially greater increase is occurring at the graduate level. The Kansas City campus is emphasizing graduate study in administration, while the St. Louis campus is moving toward an urban-oriented approach in business training. Currently, about 1,400 junior and senior students are enrolled in business and public administration programs on the four campuses, the freshman and sophomore years being spent in arts and science and other basic content programs. About 680 students are enrolled in graduate programs of business and administration. In 1967 baccalaureate degrees were awarded to 412 students, while graduate students were awarded 127 Master's and 3 Ph.D. degrees in business and public administration. In addition to degree programs, business and public administration has been involved heavily in the continuing education needs of individual managers and public and private organizations.

demand

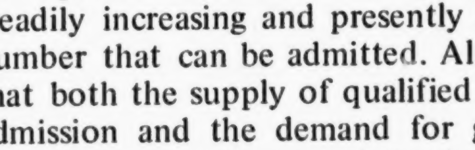
Because the production and distribution of goods and services is big business in almost all categories, and because government is heavily involved in the process, the demand for college-trained management and administration personnel is great. The increasing concern of the United States with the welfare of other nations is adding another dimension to the national demand for persons with administrative competence. Unquestionably, much of the economic welfare of this nation will depend upon the ability of universities to train a sizable cadre of highly capable managers and administrators. This is also true of the State of Missouri, where there will be continuing demand of considerable strength for the foreseeable future.

supply

Currently, about 90 percent of the business and public administration enrollees at the University of Missouri are from the State of Missouri. A somewhat smaller percentage of graduate students list the state as their home residence. The number of qualified students seeking admission to business and public administration programs has been steadily increasing and presently about equals the number that can be admitted. All studies indicate that both the supply of qualified students seeking admission and the demand for graduates of the University of Missouri School of Business and Public Administration soon will exceed the personnel and faculty capabilities of the University.

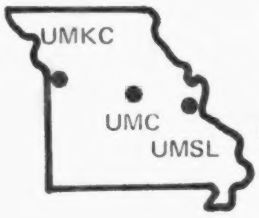
projection

Because of the growing demand for graduate study in business and public administration, the University of Missouri anticipates, and is preparing for, a somewhat larger increase in graduate enrollment than is expected in the baccalaureate program. By 1978 enrollment in the junior and senior years of Business and Public Administration Schools at the University should increase from the present 1,400 to about 3,000. In the graduate programs the increase is estimated to be from 680 to about 2,300 by 1978. These enrollment increases will occur on the Columbia, Kansas City, and St. Louis campuses.



ENROLLMENT IN BUSINESS AND PUBLIC ADMINISTRATION
1968 AND 1978 (PROJECTED)

EDUCATION



Present programs on Columbia, Kansas City, and St. Louis campuses.
During the next 10 years: expansion on these campuses

overview

Modern society is concerned that each individual receive the maximum education throughout his lifespan that his inherent capabilities will permit. Only in this way can he maximize his personal satisfactions and his contribution to the society of which he is a member. Although the direct concern of the University is with the provision of higher education, through its Schools of Education it is indirectly involved with education at the pre-school, grade school, high school, post-high school, and junior college levels. The educational functions of the Schools of Education may be divided into two categories:

- Preparation of teachers for all levels of education from pre-school to college and adult education.
- Preparation of personnel to serve in allied educational positions, including guidance counsellors, supervisors of various professional and non-professional personnel, school and other educational administrators, educational researchers, and other types of special-service personnel.

The contribution of schools of education is potentially of great importance nationally and to the State of Missouri. That portion of the population that has the capacity for baccalaureate and graduate study spends 12 years in pre-college formal education during which habits, attitudes, and basic knowledge are being acquired. This preparatory period is critical to the student's later performance in higher education, and it is largely dependent upon the quality of instruction he receives. But this instruction is just as important for the student who will terminate his formal education below the college level, including the exceptional student with mental, emotional, or physical deficits. Teaching methodology, skills, and organization are vital to the success of educational programs at the pre-college level. It is the function of schools of education to provide the trained personnel who can accomplish this objective.

present program

The University of Missouri now offers programs leading to the baccalaureate, master's, and doctoral degrees in education. Current graduate and undergraduate enrollment is about 6,200, and in 1967 baccalaureate degrees were awarded to 861 students, master's degrees to 529 students, and doctoral degrees to 38 students. Because teachers must acquire a sound basic knowledge of the discipline in which they will be instructing, as well as the methodology and skills of the teaching profession, school-of-education programs are integrated with those of other schools of the University. The proper distribution of content and method courses is a continuing concern of the schools of education. An essential part of educating teachers is actual training in teaching situations under faculty supervision. Teacher training and research laboratory arrangements have been made by the University of Missouri with a number of schools, and one campus school is operated for this purpose. The research program in education is concerned with the learning process and the ways in which expanding technological knowledge may be used to assist educational growth.

Although the faculty of institutions of higher education seldom avail themselves of teaching methodology resources, the University of Missouri is moving in this direction through cooperative arrangements between the Schools of Education and the faculty of other education programs.

demand

During the past 10 years, the Missouri State Teachers Association estimates, there has been an average annual increase of more than 1,000 in the number of teachers hired by Missouri elementary and high schools. The increase between 1965-66 and 1966-67 was 2,400, and in August, 1967, there were an additional 1,600 unfilled positions in Missouri schools.

It appears inevitable that there will continue to be an increase in the demand for good teachers, and these teachers represent a demand for graduate training. Added to this is the effect of pronouncements by professional organizations, such as the American Association of School Administrators, that six years of work be minimal for certification in administration and supervision. It is also clear that there will be a continuing need for more college administrators, teachers, and special service personnel as college enrollments increase. Also, the current emphasis on education as a partial solution to inner-city problems and to the care needs of persons with mental and physical deficits has enormously increased the demand for training in special education. The combined demand for teacher education is stable and very strong.

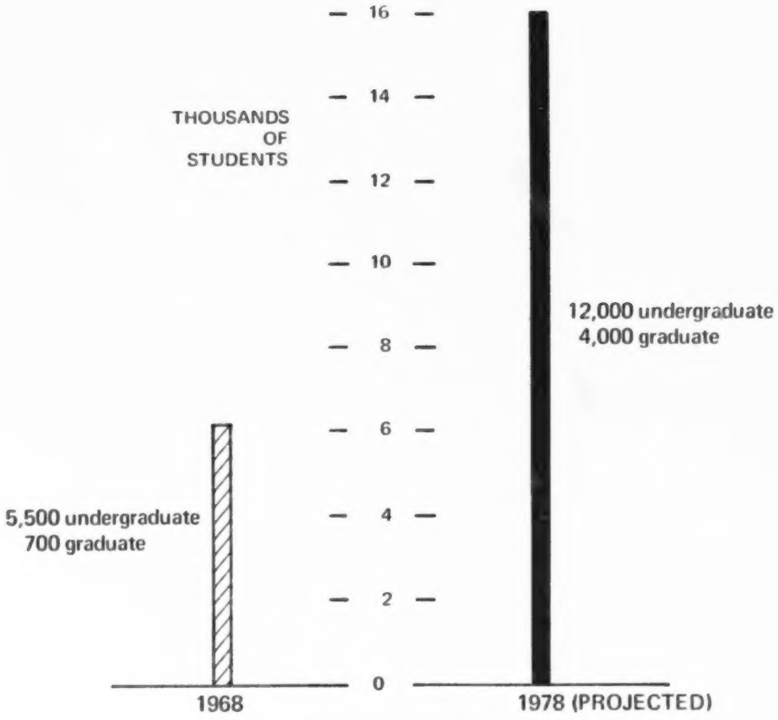
supply

Data assembled by the National Education Association for Missouri show that schools in Missouri have graduated annually between 3,400 and 4,600 teachers in past years, but that only about 57 percent of newly qualified teachers actually enter Missouri school systems. The need of existing teachers for additional college instruction is evident from the fact that 769 have fewer than 120 hours of college credit, and 21,000 do not possess the master's degree.

The number of qualified students seeking admission to the University of Missouri Schools of Education has been steadily increasing, so that during the past 12 years enrollment has tripled. There is every reason to expect that the supply of students will more than match the educational facilities that will be available at the University of Missouri during the next 10 years.

projection

During the next 10 years, the University of Missouri expects the demand for teachers and school administrators to continue its past rate of increase and is prepared to maximize the supply within the limits of available resources. There undoubtedly will be some changes in elements of the total demand, and these will be evaluated and accommodated. Graduate study will expand more rapidly than undergraduate enrollment, and plans have been made for this change. It is anticipated that by 1978 undergraduate enrollment will have risen to 12,000 and graduate enrollment to 4,000. Based upon demand from the school systems of Kansas City and St. Louis, much of this growth in enrollment probably will be on those two urban campuses. The University will continue to support its three Schools of Education located on the Columbia, Kansas City, and St. Louis campuses.



ENROLLMENT IN EDUCATION PROGRAMS AT THE UNIVERSITY OF MISSOURI–1968 AND 1978

ENGINEERING

Present programs on Columbia and Rolla campuses.
During next 10 years: major growth on these campuses

overview

Engineering is the profession in which a knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. In a recent report from the Rand Corporation forecasting the world of the future, two major areas of development were pointed out:

- Large scale systems created for the development, control, and use of our natural resources.
- Continual development of:
    1. Automated manufacturing industries.
    2. Synthetic foods to meet the needs of an expanding world population.
    3. Rapid transportation systems for land, sea, and air.
    4. Space programs and design of more efficient and humane military defense systems.
    5. Bio-social systems having to do not only with medical advances, housing, community development, and pollution control, but also with the coordination into large scale social systems, such as vast metropolitan complexes which will utilize technological knowledge more effectively.

Each of these developments contains the promise of greater well-being for the people of the United States and the world. However, each change may create new and probably unanticipated problems that will have to be solved by the engineer. These advances will call for engineering and technological talent on a scale never before seen.

The history of engineering education in the United States in the last half century reflects the influence of two strong trends. On the one hand, there has been a constant desire for a unity of purpose in engineering education and for uniformity of standards and practices within the various branches, together with a growing tendency to emphasize fundamental principles. Conversely, there has been a strong tendency toward diversity in the content of engineering programs in all branches. The need for rounding out the engineer's technical knowledge with social and humanistic studies has long been recognized. More recently, widespread acceptance of other types of specialized training, for example statistics and computer programming, is further adding to the breadth and diversity of material considered essential to the basic needs of all engineers. The time which can be devoted to technical specialization has necessarily become limited; this has occurred in a period when knowledge has been growing at an accelerated pace and technical demands on engineering graduates are greater than ever before. It is, therefore, not too surprising that the holder of an engineering baccalaureate has increasingly looked to graduate-level education as a means to provide himself with the high level of technical proficiency required to permit him to cope with the technical complexities and engineering demands of his specialty.

present program

The University of Missouri, through the Schools of Engineering at Columbia and Rolla, offers the baccalaureate, master's, and doctoral degrees. While most degrees are granted in the traditional programs of chemical, civil, electrical, and mechanical engineering, there are substantial enrollments in agricultural, industrial, and metallurgical engineering, and somewhat smaller ones in aerospace engineering, engineering mechanics, geological engineering, mining engineering, nuclear engineering, petroleum engineering, and sanitary engineering programs.

Total undergraduate enrollment is about 5,000 students, and an additional 700 are enrolled for the master's and doctoral degrees. In 1967 the University of Missouri awarded 750 baccalaureate degrees, 213 master's degrees, and 22 doctoral degrees in engineering.

demand

The *Final Report of the Committee on Goals of Engineering Education* of the American Society for Engineering Education contains the following statement:

> Moreover there is little doubt that, in addition to new varieties of occupational specialities, the future will bring an increasing demand for larger numbers of engineers in all areas. The proportion of engineers in the total work force in the United States has been growing for many years, and there is every reason to believe that this trend will continue. Indeed, with the rapid development of scientific knowledge since World War II and the growing demand to put this knowledge to use in the production of goods and services that can help the economy grow, the shortage of technologically trained personnel has become a matter of national concern. Recent projections made by educational, governmental and professional groups agree that society's needs in the future will call for engineering and technological talent on a scale never before seen. It is recommended, therefore, that opportunities for engineering education be greatly expanded not only in existing institutions but also in new institutions being created to meet the mounting demands for higher education in general. . . . In engineering, the number of master's degrees awarded annually has grown by almost 2.8 times during the same period, and the number of doctorates by over 4 times. The projections made in the Goals Study, as well as others by the Office of Education, the National Science Foundation, the President's Science Advisory Committee, and the Engineers Joint Council, all indicate substantial and continued growth at the graduate level.

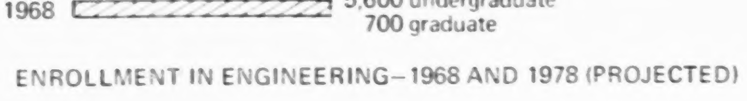
Although demand data for the State of Missouri are not readily available, there is no evidence to indicate that it varies from that of the nation as a whole, except perhaps in a stronger need for graduate engineers by Missouri organizations. It is paradoxical that, with the great need for engineers, the national undergraduate enrollments have remained virtually unchanged during the past 10 years while general college enrollments have increased significantly.

supply

In recent years the enrollment in engineering at the University of Missouri, as a percent of national enrollment, has been slowly increasing. In 1962 undergraduate enrollment at the University was 1.97 percent of the national total and in 1966 the percentage was 2.28. Graduate enrollment at the University of Missouri in 1962 was .68 percent of the national and by 1966 had risen to .95 percent. In Missouri there are three institutions with accredited programs in engineering: the University of Missouri and two private institutions, Washington and St. Louis Universities. In 1965, the last year for which total figures are available, the University of Missouri awarded 72 percent of the baccalaureate, 75 percent of the master's, and 74 percent of the doctoral degrees awarded in the state. Indicative of the increasing supply of engineers with graduate degrees are the national ratios of graduate to baccalaureate degrees awarded in 1955 and 10 years later. In 1955 the number of master's degrees awarded was 22 percent of the baccalaureate degrees, and by 1965 this figure had risen to 37 percent. For doctoral degrees the figures were 3 percent in 1955 and 6.5 percent in 1965. Over the same period B.S. degrees in engineering increased 60 percent, while M.S. degrees awarded rose 170 percent and Ph.D. degrees 250 percent. At the University of Missouri undergraduate enrollments in engineering increased 26 percent from 1962 to 1966, while graduate enrollments rose 118 percent during the same period.

A recent survey by the United States Office of Education records the rapid rise since 1955 in doctoral degrees granted in engineering as compared to other fields. The survey also predicts that, in less than a decade, engineering, which only a few years ago lagged far behind other professions in doctoral degrees, will have achieved first place. In fact, the combined engineering and physical science degrees will exceed one-third of all doctorates granted.

To date, the University of Missouri has been able to accommodate the increasing numbers of qualified undergraduate students applying for admission to engineering programs.



ENROLLMENT IN ENGINEERING–1968 AND 1978 (PROJECTED)

	1955-56	*1964-65*	*1975-76*
Engineering	610	2,124	7,310
Physical Sciences	1,667	2,829	5,600
Arts and Humanities	1,135	1,991	4,500
Education	1,438	2,372	4,400
Social Science	1,161	2,027	4,040
Biological Sciences	1,025	1,928	3,820
Other Fields	1,867	3,196	7,240
Totals	8,903	16 467	36,910

DOCTORAL DEGREES IN ENGINEERING AND OTHER FIELDS IN THE UNITED STATES–GRANTED IN 1955-56 AND IN 1964-65 AND PREDICTED FOR 1975-76.

projection

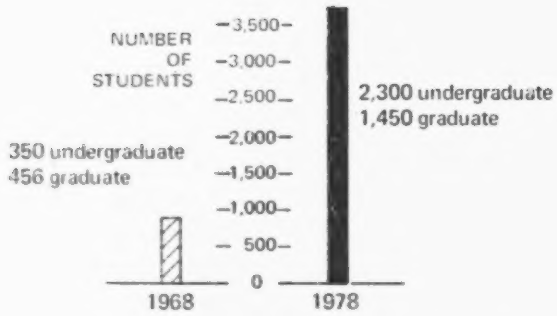
The *Final Report* of the American Society for Engineering Education has made the following forecast:

> What seems to be happening is that from every quarter–practicing engineers, employers of engineering talent, educators, and students themselves–pressure is being exerted to raise the level of basic engineering education and to include in the preparation for general engineering practice not merely additional undergraduate courses but at least a year of training at the graduate level–in short, to increase the generally accepted academic requirements for entry into the engineering profession. There is little doubt that during the next decade we will witness a rapidly developing consensus that the master's degree should be considered the basic professional degree in engineering. . . . Indeed, it is estimated that by 1978, about one engineer in seven will go on to a doctorate.

Although this emphasis on graduate study has not been accepted by the entire engineering profession, the University of Missouri anticipates, and is planning for, a baccalaureate enrollment in engineering approximating 8,500 students by 1978 and a graduate enrollment approaching 2,000. These enrollments will occur in the Schools of Engineering on the Columbia and Rolla campuses, although some of the students may be attending classes on the Kansas City and St. Louis campuses.

As the engineering programs become more sophisticated and shift to the graduate study level, many positions in industry requiring a lesser involvement in science and mathematics will find their manpower needs satisfied in substantial amounts by graduates of two-year technician programs. This course work is post-high school education and not of a nature appropriate for transfer to an engineering curriculum. Its objectives are different and the level upon which certain courses are taught does not provide the proper background for continued development in the engineer. However, it is important that through the junior college movement or at separate institutions, two-year terminal technician programs be developed in addition to the feeder programs to engineering colleges leading to four-year engineering or four-year technology programs.

HEALTH PROFESSIONS



ENROLLMENT IN ALLIED HEALTH PROGRAMS–1968 AND 1978 (PROJECTED)

In recent years man's knowledge about himself has grown at an accelerated rate and has supported a rapid expansion in his capability for health improvement. This capability, combined with a high level of income, has fostered a demand for health services that has all but swamped the health resources of the nation. Current studies of health manpower demonstrate a considerable spread between demand and supply, and in most areas this discrepancy is not decreasing.

The University of Missouri is concerned about these shortages of health manpower and has taken major steps to deal with the problem. However, the training of competent health personnel is a long and complicated process requiring patients, patient-care facilities, and a high degree of integration among a variety of disciplines. It is an expensive procedure, and, if quality is maintained, the output per program is discouragingly small. Because of these unique characteristics, the several educational programs with primary focus on the health professions are considered together.

ALLIED HEALTH PROGRAMS . . . undergraduate

overview

Efficient use of scarce and expensively trained health manpower occurs only when both over- and under-utilization are minimized. To accomplish this objective, a manpower pattern must be devised where competence and training are precisely adjusted to the job to be done. In this pattern, technicians play a substantial role, and training an adequate supply for the health services area is a major means of conserving the short supply of more expensively and intensively trained professional personnel. The University of Missouri has developed a sizable but realistic program of training allied health technicians; the program is making a strategic contribution to the acute health manpower shortage in Missouri.

present program

The University of Missouri now offers, or will offer in the immediate future, baccalaureate degree education in the following allied health professions: dental hygiene, dietetics, inhalation therapy, medical record library science, medical technology, occupational therapy, orthoptics, orthotics, physical therapy, prosthetics, and radiologic technology. Approximately 350 students are currently enrolled in these courses and about 75 graduated in June, 1968.

demand

The current demand for graduates of the allied health programs, nationally and in the State of Missouri, is one of substantial strength and stability. Informed estimates describe the demand as increasing in strength over the next 10 years with no likelihood of market saturation.

supply

The supply of trained allied health personnel in all cases is substantially below demand and demonstrated need. Also, the number of qualified students applying for admission to these programs is double to seven times the number of those who can be accommodated. Little change in this supply situation is expected during the next 10 years.

projection

It is likely that during the next 10 years additional allied health manpower areas will evolve, and new educational programs will be initiated to supply their needs. However, planned expansion of present programs at the University of Missouri should be producing 540 Bachelor of Science and 35 Master of Science graduates, with a total enrollment of about 2,300 students by the year 1978. This proposed increase is based upon what appears feasible to the University, including new programs at Kansas City and St. Louis, but will not come close to satisfying the demand for these graduates.

ALLIED HEALTH PROGRAMS . . . graduate

overview

Because of the supportive and complementary nature of the various allied health positions, the training requirements tend to vary considerably in nature and degree. A very important segment is firmly oriented toward applicants with graduate degrees. The educational programs for graduate degrees fall into three categories: public health, biological science, and a miscellaneous group that ranges from medical illustration to information science.

present program

Although the University of Missouri does not now have a school of public health, the elements for this program have been rapidly developing in the School of Medicine. Currently, there are 24 students enrolled in the Health Services Management program leading to the master's degree and 60 enrolled in other public health courses leading to the Master of Science degree. Graduate enrollment in health-oriented bio-sciences is 372 at present. These are candidates for master's and doctoral degrees. Although several graduate programs are about to be launched in the miscellaneous category of allied health professions, none is functioning at present.

demand

The demand for graduates of public health programs is largely for administrative and technical staff for a variety of health care institutions, including hospitals and the various levels of government. A substantial number of the positions requiring this level of training are either unfilled or occupied by staff with deficient training. Thus, a strong demand for these graduates has existed for some years without apparent change.

Graduates in the bio-sciences tend toward the doctoral level and enter research or teaching positions. The dependence of the health professions upon the bio-sciences is basic and critical. Satisfactory movement in the entire health field cannot occur when there is inadequate representation at the graduate level of the bio-sciences. The demand is long standing, is strong, and shows no likelihood of declining.

The demand for personnel with graduate training in some 12 different disciplines related to health is becoming apparent; the University, recognizing these emerging areas, is planning educational programs for them. When the demand is visible and adequate, these programs will be initiated.

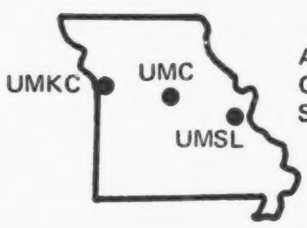
supply

The supply of adequately trained personnel in public health and bio-sciences is substantially below the current demand, and in the miscellaneous category, the supply is almost nonexistent. At the rate well-trained graduates are being produced, there is little likelihood of any sizable increase in this supply. Currently, the number of students seeking graduate training in public health and in the health-oriented bio-sciences is stabilized at several times the number that can be accommodated.

projection

It is conservatively estimated that by 1978 there will be [illegible] graduate students enrolled in public health courses, 875 taking course work toward master's and doctoral degrees in health-related bio-sciences and 400 enrolled in new discipline graduate health-related programs. These new discipline graduate programs will probably include therapeutic recreation, behavioral sciences, information sciences, radiology, toxicology, medical technology, physical therapy, occupational therapy, dental hygiene, medical illustration, and nutrition.

The enrollment estimate for the graduate program in public health is predicated upon the creation of a school of public health or possibly of allied health professions. Plans for this unit have been under development for some time and will probably be implemented during the next several years on the Columbia campus.



Allied health programs on
Columbia, Kansas City, and
St. Louis campuses

DENTISTRY

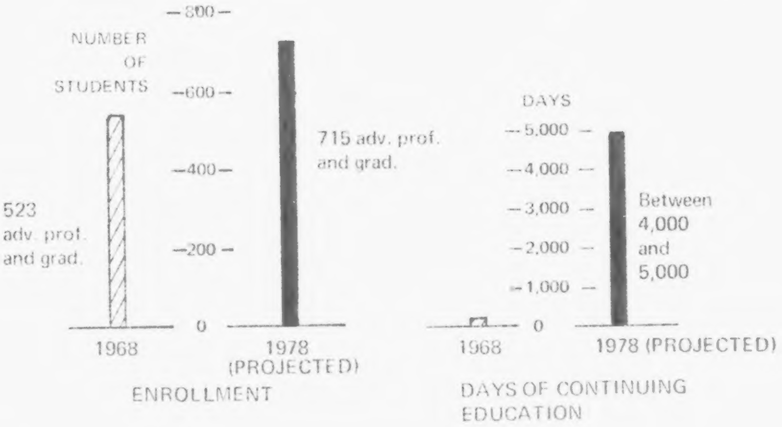
Present and future program on Kansas City campus

overview

University of Missouri dental education is centered in a School of Dentistry located in Kansas City, where new facilities now under construction will be ready for occupancy within two years. The school functions somewhat as a regional resource in that it is a principal source of dental education for students from Arkansas, New Mexico, Kansas (these three states provide direct or indirect financial support for their students attending this school), Oklahoma, Colorado, Utah, and Hawaii. There are two other schools of dentistry in the state, one at Washington University and one at St. Louis University. However, St. Louis University has publicly stated that its School of Dentistry is to be terminated; the last freshman class was admitted during 1967-68.

present program

The education of dental students is a four-year professional program based on three to four years of undergraduate education. Advanced graduate work beyond the normal four-year period is offered, and continuing education is increasing in importance. Presently, there are 467 dental students, 56 graduate dental students, and approximately 175 student days of continuing education. The graduate program is offered in the biomedical sciences and in the recognized specialties of dentistry. Affiliations with Kansas City General Hospital and Medical Center, Children's Mercy Hospital, Kansas City Veterans Administration Hospital, and Wadsworth Veterans Administration Hospital permit training of interns and residents in oral surgery, pedodontics, peridontics, and prosthodontics. The other specialists of dentistry are trained within the dental school.



DENTISTRY PROGRAM

demand

In its November 1967 Report, the National Advisory Commission on Health Manpower estimates that the demand for dental services in the United States will increase between 100 and 125 percent in the period 1965-75. During the same period the supply of dentists is expected to increase by 16 percent. With continued increase in the use of auxiliary personnel and with further improvements in dental technology, the Commission calculates that total production of dentists may increase by as much as 50 percent. However, such an increase will still fall seriously short of meeting the expected demand.

supply

The supply of qualified applicants considerably exceeds the available spaces nationally and at the University of Missouri. In 1966 the schools of dentistry admitted 5,942 first-year students from 10,000 qualified candidates, and a higher ratio prevails in Missouri. However, the number of qualified candidates from Missouri is relatively low and is about half the 125 new dentists entering practice in Missouri in 1967. The reasons for this are being explored, and steps will be taken to remedy the deficiency. The UMKC School of Dentistry also serves as the dental school for Kansas, through an exchange program between the Curators of the University of Missouri and the Regents of the University of Kansas; and for New Mexico and Arkansas, through monetary reimbursement agreements.

projection

With the completion of the facilities now under construction, dental education programs can and will be expanded to satisfy some of the demand that exists and that will develop in the decade ahead. It is estimated that by 1973 there will be 600 dental students, 115 graduate dental students, and between 4,000 and 5,000 student days of continuing education in dentistry. The increased enrollment will be accompanied by a considerable rise in staff, and thus in basic and applied dental research, thereby creating a dental educational center that will make a maximum contribution to the health of the resident population of Missouri. This program will be located only on the Kansas City campus.

MEDICINE

Present program on Columbia campus.

overview

The physician is the most intensively and extensively trained professional person in the entire health field. His formal education requires four years as an undergraduate and four years in a school of medicine before the M.D. degree is awarded. Then he must spend from one to seven years as an intern and resident, depending on his specialty, before he begins practice. Because of the obsolescence rate in medical knowledge, the physician must continually replenish his initial education, and this is increasingly based upon formal educational programs in the university setting. Thus, the university medical school has become the primary source for basic and continuing medical education, and hence is responsible, to a considerable extent, for the quality of medical care provided to the resident population.

The modern school of medicine is a medical center complex wherein is housed a variety of activities. The first two years of medical education are in the basic sciences, which also provide graduate study programs in the areas of medicine. The second two years are clinic oriented and require both inpatient and outpatient facilities of substantial size—a hospital of about 500 beds and 100,000 outpatient visits annually. Research is an essential element of medical education; and scientific investigation by graduate students, medical students, residents, and faculty is a continuous activity. Throughout this maze of instruction, research, and service, a variety of allied health students, such as nurses, physical therapists, and medical technologists, are in training. This complex usually constitutes the largest single interrelated series of activities in the modern university.

Although the cost of this educational complex is high, it is largely so because of the service component. While this service to patients is absolutely essential to a quality educational program, it is an expense which otherwise would be borne by the state and local governmental units and perhaps should not be considered as part of the cost of educating physicians and allied health personnel.

present program

In September, 1967, the School of Medicine admitted 92 students to its first-year class. In September, 1968, because of new facilities to be made available, the first-year class will be increased to 100 and be stabilized at this number. Thus, by 1970 there will be 370 medical students in training.

Currently, the School of Medicine has facilities at the Medical Center for 116 interns and residents. In addition, the school has educational affiliations covering the training of 176 interns and residents as follows: General Hospital and Medical Center of Kansas City–96; Children's Mercy Hospital at Kansas City–13; Missouri Institute of Psychiatry at St. Louis–50; Missouri Baptist Hospital at St. Louis–17.

A variety of continuing education programs for practicing physicians has been developed by the University of Missouri and is presented at the Medical Center and in various population centers over the state. Use of various forms of communication media and devices for these programs is being explored.

demand

The composite demand for physicians arises from the areas of private practice, public health, health administration, and health education. The supply is also a composite of graduates of schools of medicine and schools of osteopathy, each stratified by degree and kind of special training. Because of this composite nature of demand and supply, the changing nature of health care, the increasing competence of health personnel, the sizable growth of health facilities, and the rise in consumer incomes, the strength of demand for physicians with the M.D. degree has been difficult to measure with precision. However, all reliable studies, by whatever realistic criteria, indicate a demand of increasing proportions in recent years. This demand exists nationally and also in the State of Missouri; it is especially acute in non-metropolitan areas.

supply

(Most of the information on supply of physicians was derived from *Survey of Physician Manpower in Missouri* (for the Missouri Commission on Higher Education) by Stanley W. Olsen, M.D., May 1968)

While the ratio of physicians (M.D.) has stayed nearly constant over the last 30 years for the nation, in Missouri the ratio has declined from 172 practicing physicians (M.D.) per 100,000 population in 1921 to a low of 115 in 1961 and a slightly higher 120 per 100,000 in late 1965. However, the State of Missouri is served by a substantial number of physicians with the D.O.

degree, and when they are added to the State of Missouri and the national physician population, the following physician-to-population ratios are disclosed for December 31, 1965:

United States	145/100,000
Missouri	149/100,000

Also, this average ratio of 149 physicians per 100,000 Missouri population obscures a rather wide variation within sections of the state:

	M.D. + D.O./100,000 Population
St. Louis	177
Kansas City	177
Central	145
Northern	123
Springfield - Joplin	118
Southeast	82
Central Ozark	63

Currently, in Missouri there are three schools of medicine (at Washington University, St. Louis University, University of Missouri) and two schools of osteopathy (Kansas City College of Osteopathy and Surgery, Kirksville College of Osteopathy and Surgery). Following is the 1966 and anticipated future enrollment of first-year students for each of these five schools:

M.D. Schools	*1966*	*1970*	*1976*
Washington University	88	109	109
St. Louis University	115	128	128
University of Missouri	85	100	100
D.O. Schools			
Kansas City College	106	117	117
Kirksville College	101	106	112
Total (M.D. and D.O.)	495	560	566
Increase	–	65	6

Thus, at the current rate at which physicians are being graduated by Missouri schools and retained for practice in the state, the ratio of physicians to population during the next nine or ten years will decline from 149 to 139 per 100,000.

Only a portion of the physicians graduated from the five Missouri schools remain to practice within the state. Based largely on past experience and anticipated enrollments, the following estimates were made of the number of graduates (1967-75) who would remain to practice in Missouri:

Washington University (28% retention)	226
St. Louis University (16% retention)	152
University of Missouri (45% retention)	320
Kansas City College (12% retention)	110
Kirksville College (10% retention)	82
Total	890

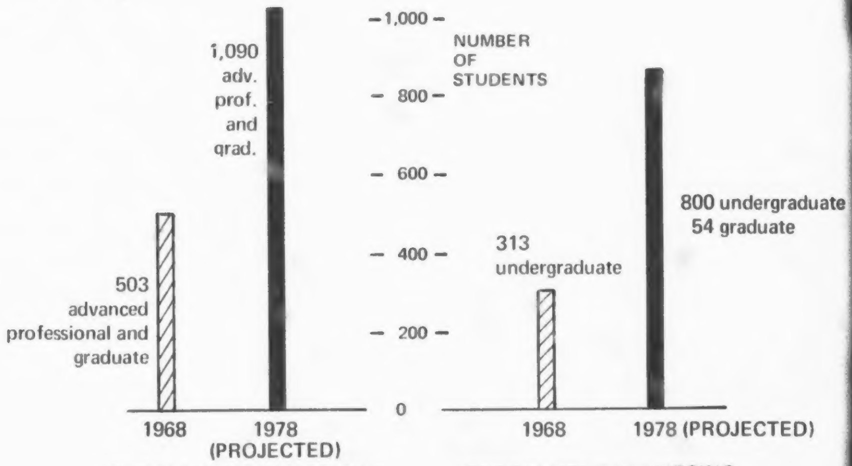
The number of qualified students from Missouri seeking to enroll in schools of medicine is somewhat below the national average. In 1966 only 3.2 Missouri students per 100,000 population entered medical schools, while the national average was 4.5. Raising this proportion to the national average could increase by 300 the number of physicians entering practice in Missouri during the next 10 years.

Using all available data about the several factors that govern the number of practicing physicians, the following estimates were made for the State of Missouri for the year 1975, including both M.D. and D.O. physicians:

Missouri graduates to be added by 1975	890	
Out-of-state physicians to be added by 1975	705	
Total new physicians added 1966-1975		1,595
Physicians in Missouri in 1966	6,708	
Expected deaths 1967-1975	1,048	
Number Missouri physicians remaining		5,660
Total Missouri physicians projected for 1975		7,255
Net increase	(8.2%)	547
Existing ratio physicians to population (1966)		149/100,000
Estimated ratio physicians to population (1975)		139/100,000

projection

A careful evaluation of the national and the statewide demand for physicians, and also for allied health personnel, indicates the current rate of training will not reduce the substantial spread between demand and supply. Consequently, the University of Missouri has concluded that additional medical center facilities and personnel must be initiated early in the next 10 years so that an additional 100 medical students can be enrolled each year. This medical center complex could provide the base for a similar expansion in training competence for interns, residents, and allied health personnel. As a considerable lag will exist between initiation and the first graduating class (three years construction plus four years medical school), an early beginning would appear desirable. The location of this additional medical school facility could be at Columbia or at Kansas City, and the advantages of each site are now under study by the University.



ENROLLMENT IN MEDICINE ENROLLMENT IN NURSING

NURSING

Present program on Columbia campus
During next 10 years: programs also on Kansas City and St. Louis campuses

overview

Nursing occupies a key position that closely approximates the importance of physicians in health care. The interrelationship of the two professions is such that a shortage of nursing aggravates a deficiency of physicians, while an adequate supply of nurses can modify the deleterious effects of doctor shortages.

Nursing education is primarily an undergraduate activity and functions at several discrete levels. The licensed practical nurse is trained to deliver direct patient care and receives a certificate or diploma after about one year of vocational education. Registered nurse programs are of three types: (1) Diploma programs in single-purpose hospital schools providing three years of training, primarily for work in hospitals; (2) Associate degree programs usually offered by community or junior colleges in concert with a hospital and covering two years of school and clinical training; and (3) Baccalaureate-degree programs providing four to five years of basic university and hospital training. The baccalaureate program alone provides adequate education for graduate study. Customarily, universities have limited their nursing-education programs to the baccalaureate and graduate degree levels of training.

present program

Of the 800 students now enrolled in baccalaureate and master's degree programs of nursing education in Missouri, 313 are at the University of Missouri. Although the University of Missouri does not now award the master's degree in nursing, in the fall of 1968 the first students seeking this degree will be admitted.

demand

The findings of health manpower studies in recent years demonstrate a very strong demand for nursing service but seldom distinguish among technical, baccalaureate, and graduate professional nurses. However, the 1963 report of the Surgeon General's Consultant Group on Nursing, in estimating the need for increasing the number of graduates from baccalaureate and higher degree programs between 1961 and 1970, stated:

> Because of the need for nurses in teaching and leadership positions, the highest priority for expansion is in the baccalaureate and graduate programs. The baccalaureate programs should double their graduates and the graduate program capacity should be tripled.

By 1966 the number of baccalaureate graduates had increased only 21 percent and advanced degree graduates by 27 percent.

In Missouri, the report of a survey conducted by the State Division of Health in the fall of 1967 shows that 1,353 budgeted full-time and 266 budgeted part-time positions for registered nurses were reported unfilled in Missouri hospitals, public health agencies, nursing homes, and educational programs for nurses. The survey did not include physicians' offices, industries, and a variety of other agencies employing nurses. All indicators forecast a continuing demand for nursing service.

supply

Manpower studies have shown that for every registered nurse in active duty, there are several who have retired from the profession to rear families or work in other occupations. Efforts to update and entice these nurses out of retirement have been only moderately successful. Effective continuing education programs are essential to this effort, and the University of Missouri considers them an important segment of the entire nursing education programs.

The number of qualified applicants seeking admission to the baccalaureate program of the University of Missouri is substantially larger than the number of positions available. In 1967 more than 300 applied for admission, and of those denied entrance, 45 ranked in the top one-third of their high school graduating classes. Many students denied admission to the nursing program enroll in other university programs, hoping to be admitted to nursing at a later date.

projection

Plans are nearing completion for a sizable expansion in the baccalaureate and graduate programs in nursing. On the Kansas City and St. Louis campuses baccalaureate schools of nursing are planned, and it is anticipated they soon will be initiated. It is anticipated that by 1978 there will be enrolled in the University of Missouri nursing programs 800 baccalaureate students and 54 graduate students seeking the master's or doctoral degree. In addition, it is imperative to develop a continuing education program that will minimize the knowledge and skill obsolescence that is currently so wasteful of nursing resources.

PHARMACEUTICAL EDUCATION

Present and future program on Kansas City campus

overview

A significant portion of modern medical therapy involves the use of drugs, and the number of these pharmaceuticals has expanded tremendously in recent years. Pharmaceutical education includes the entirety of man's knowledge concerning drugs; their discovery, development, manufacture, distribution, legal requirements, preparation, analysis, dispensing, use, effects, metabolism, and excretion. The typical pharmacy graduate spends two to four years completing the undergraduate pre-pharmacy requirements and then completes the three years of professional study at a school of pharmacy. After a year of internship experience, as required by the Board of Pharmacy, the graduate is licensed as a pharmacist. At this point, he is capable of fulfilling most responsibilities called for in the practice of community general pharmacy or hospital pharmacy.

Since World War II, the sophisticated advances in medicinals, the dosage forms and distribution systems, have brought about a demand for pharmacists with advanced education in such fields as hospital pharmacy, industrial pharmacy, governmental food and drug agencies, and education.

present program

There are two schools of pharmacy in Missouri: the St. Louis College of Pharmacy (a private college) and the University of Missouri - Kansas City School of Pharmacy. Currently, these two schools are graduating a total of 90 students each year, the University of Missouri supplying slightly less than half of the total. About 56 percent of the St. Louis College of Pharmacy enrollment comes from Illinois, and 35 percent of the University of Missouri School of Pharmacy enrollment is from Kansas. Approximately 60 percent of the graduates from the two schools remain in the State of Missouri to practice.

demand

The United States Public Health Service recently estimated that 15,000 additional pharmacists were needed in the nation to satisfy current demand. In Missouri the number of practicing pharmacists is declining, and more than 30 percent of those in practice are over 60 years of age. Available evidence indicates an unsatisfied demand for retail pharmacists, or pharmacists capable of supervising hospital and nursing home pharmacies, and of pharmacists competent in research and other fields requiring graduate education. The educational institutions in Missouri are not producing enough graduates to prevent a continued decline in the number of pharmacists. Thus, the demand is strong and stable and will continue for many years into the future.

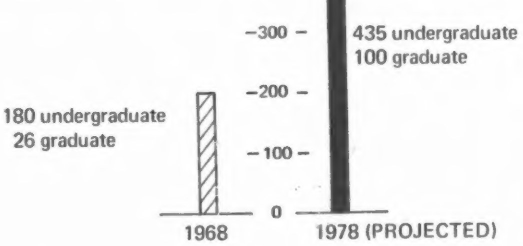
supply

Prior to 1960 the number of pharmacists remained rather stable in the State of Missouri, but in the seven years since that date there has been a decline of 400. At the rate pharmacists are being produced, it is anticipated the decline will continue, though at a slower rate. The supply of pharmacists with graduate training is currently almost non-existent in Missouri.

Presently, the number of qualified Missouri applicants for enrollment is somewhat below the number that could be admitted to the Schools of Pharmacy. Improvement of this deficiency would result in a somewhat larger percentage of graduates remaining in the state.

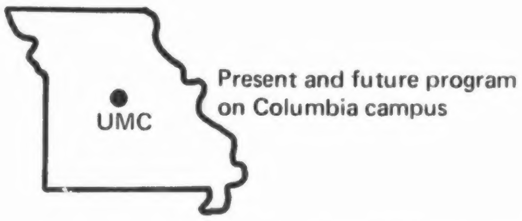
projection

Considering the national and local demand for pharmacists and the rapidly developing requirements for pharmacists with graduate degrees, the University of Missouri is planning a program expansion that by 1978 will produce about 100 baccalaureate graduates and some 30 master's and doctoral degree graduates in pharmacy each year. This program will continue to be offered only on the Kansas City campus. The need for continuing education of pharmacy graduates is being carefully evaluated, and appropriate educational programs are being prepared for early initiation.



ENROLLMENT IN PHARMACEUTICAL EDUCATION

VETERINARY MEDICINE



overview

Veterinary medicine is concerned with the health of animals as sources of food and related items for human consumption, as pets, and for study as biological systems similar to those of man. While the health of food animals and pets is very important to mankind, in recent years the use of animals in comparative medicine research has permitted tremendous strides to be taken in man's knowledge about his own health. Thus, in addition to the increasing demands for healthy consumer animals and pets associated with an expanding population, the human health knowledge explosion has placed a high premium on professional veterinary medicine.

present program

The only school of veterinary medicine in Missouri is at the University of Missouri. Prior to 1965 this school admitted about 30 new students and graduated a similar number each year. In 1965 the first-year class was expanded to 60 students, so that by 1969 the University of Missouri will be graduating about double the present number. The school also has 65 graduate students, 26 working toward the Ph.D., and 39 for the M.S. degree. The graduate program is new, and this year will award 20 M.S. and 3 Ph.D. degrees.

The Doctor of Veterinary Medicine degree is granted to students who are admitted to the school after completion of from two to four years of baccalaureate studies and satisfactory completion of the four years of professional study at the School of Veterinary Medicine. Additional formal study and research is required for graduate degrees.

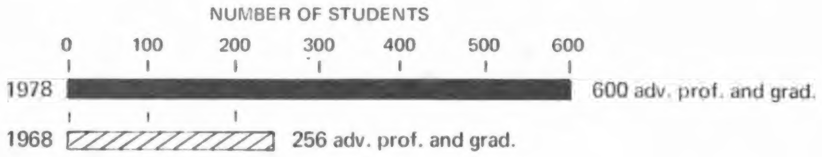
demand

During the past several decades a stable growth in the need for veterinary medicine practitioners has correlated with increases in animal and human population. Superimposed upon the traditional growth of demand has been a nearly explosive situation that started within the last decade and seems to be accelerating at an increasing tempo. Comparative medicine is fast developing into the most significant area of opportunity in veterinary medicine. In recent years there has been an acceleration of development in both human and veterinary medicine through teamwork research. As a result, the veterinarian and the physician have been brought together in nearly every phase of animal and human health. The veterinarian is in great demand in biomedical research, laboratory animal medicine, public health, biological production, military veterinary medicine, and regulatory veterinary medicine.

Recently the American Veterinary Medical Association examined the reports of three independent studies and predicted that by 1980 the nation would have about 50 percent of the veterinarians needed.

supply

Approximately 75 percent of the veterinary medicine licenses granted by the State of Missouri each year are issued to graduates of schools other than the University of Missouri School of Veterinary Medicine. However, the University of Missouri School was able to accept for admission only one of four qualified applicants, which was slightly above the national figure of 1 to 3.3. This demand for admission appears to be so strong that it has been estimated that the ratio would only drop to one-to-three if the University of Missouri increased its admission rate from 60 to 120 per year.



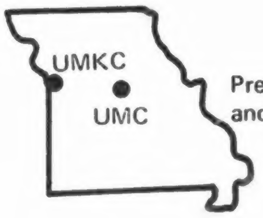
ENROLLMENT IN VETERINARY MEDICINE–
1968 AND 1978 (PROJECTED)

projection

Because of the strong demand for graduates of schools of veterinary medicine, and for admission to these schools, the University of Missouri is looking toward a possible doubling of annual admissions, or from 60 to 120 students within the next 10 years. Possible funding for some of this expansion may be available from adjacent states that do not have veterinary medicine schools.

In like manner, an increase of graduate student enrollment to about 200 is to be expected because of the rapidly expanding demand in this area. The knowledge explosion in human medicine has spread over veterinary medicine, and the obsolescence rate is forcing the development of programs in continuing education. As in other areas of instruction, a considerable growth must occur in these programs if demand is to be satisfied. This program will continue to be provided only on the Columbia campus.

LAW



Present and future program on Columbia and Kansas City campuses

overview

When mankind created social organizations and began to live by codes and laws, knowledge of those laws and their interpretation soon exceeded the capacity of ordinary man and demanded the services of a specialist. Modern society is a fabulously intricate complex of organizations that relate to each other according to their established laws, codes, and unwritten modes of behavior. Not the least of these organizations are the several levels of government that touch and modify in varying degrees the activities of all other social units. In the continuous process of creating, amending, applying, and interpreting this structure of laws, there has evolved the modern profession of legal counsel. The lawyer is trained to occupy, immediately or eventually, positions of importance in government, in public life, in private practice, and in business and financial management. In these positions, he is concerned with modifying, interpreting, and administering law; with protecting the rights of individuals and of organizations; and, increasingly, with the avoidance of legal conflict. These are key functions and of tremendous significance to modern society.

The University of Missouri has been training lawyers since 1872, and during the past 96 years has provided the State of Missouri with some of its greatest statesmen, a considerable number of state and community leaders, sizable numbers in successful practice throughout the state, and many who have occupied top positions in business. Among the graduates have been governors, senators, congressmen, judges, and state legislators. The University faculty has made additional contributions of service to the state and to the nation through research, writings, and counsel. The service has covered many years, and the quality has been consistently high.

present program

The University of Missouri's two Schools of Law now offer the J.D. professional degree, and one provides an LL.M. graduate degree program. The basic professional degree is built on the baccalaureate degree, usually in arts and science; and the master's degree is awarded for study beyond the professional program. The law student is required to complete a three-year program of law study before the J.D. is awarded.

In 1968 the University of Missouri awarded 175 professional doctoral and 6 master's degrees in law. During the 1967-68 school year, 709 students were enrolled in law school programs.

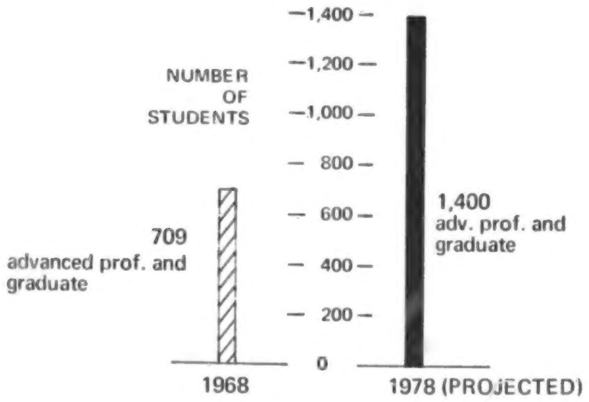
demand

The population-per-lawyer index is slightly higher nationally (621) than for the State of Missouri (586), although since 1960 it has been falling nationally and increasing in Missouri. A related factor is the stability of the national percentage of college graduates who have entered law schools. From 1948 to 1965 this percentage has varied only from seven to nine percent

The demand for legally trained manpower has steadily increased in recent years, both nationally and in the State of Missouri. In past years law graduates were forced to look for a job, but now they are in such demand that they can deliberate on which position to accept. At the same time that business and community leaders over the state are seeking lawyers who will practice in their areas, there has been difficulty in locating attorneys to serve as prosecuting attorneys and as judges of courts of lesser jurisdiction. Most law schools report increasing numbers of requests for their graduates for placement in large city law firms. It is anticipated that the present demand for law-school graduates will continue to increase for the foreseeable future.

supply

Approximately 90 percent of those enrolled in law school at the University of Missouri are from widely distributed areas of the state. Since 1960-61 the enrollment has increased 67 percent, which may be compared with the 55 percent increase in the law school enrollment of the two private universities for the same period. In 1967 the



ENROLLMENT IN LAW SCHOOL

University of Missouri had more than 2,400 inquiries about law school admission and accepted about 500 applicants, at least half of whom became law students.

Because of the strong and increasing demand for law school graduates, the rise in college graduates in Missouri, and the fact that graduate-level legal education is on the threshold of substantial increase, the supply of qualified students seeking admission to the University of Missouri law school program should register considerable strength during the next 10 years.

projection

Interest in advanced law study is growing, and law schools are experiencing a demand for graduate course work in various areas of specialized law practice. Consequently, the two law schools of the University will be concerned with two major responsibilities during the next 10 years. One responsibility will be the development of graduate training as the demand becomes evident in specialized areas. The second responsibility will be to continue upgrading the regular three-year instructional program. Additional training courses will probably be offered in legal aid (civil and criminal), in continuing education programs for the bar, and in training sub-professional and non-lawyer groups whose functions require some knowledge of the law, such as police officers, law office investigators, court administrators, and governmental agency personnel concerned with legal matters. Faculty of the two schools will continue to undertake applied research for governmental and bar organizations and to expand their basic research in law.

Assuming a steady growth in demand for admission to the basic professional program and increasing requests for advanced study, the University of Missouri should be enrolling about 1,400 students in professional and graduate legal programs by 1978. The University will continue to support only two law schools during the next decade, one at Columbia and one at Kansas City.

INFORMATION SCIENCE

It is quite evident that the University of Missouri in its early state of development of a multi-campus university has an opportunity and responsibility to deal effectively and in depth with the new field of Information Science.

In basic research it must thoroughly pursue the most rapid, economical, and effective manner by which the new knowledge arising from research and scholarly endeavor can be translated into action of benefit to the public which it serves. This multi-discipline, multi-campus responsibility will require intensive study in automation, improved communication, increased intra- and inter-university cooperation, and maximum utilization of resources being developed elsewhere. Perhaps the University of Missouri has no other such fertile field of endeavor through which it can serve its students, faculty, and fellow institutions, both in Missouri and elsewhere. It has an impressive array of talented faculty and substantial existing resources to pursue this goal. Key catalytic resources and persons are all that will be required to achieve a portion of national excellence in a relatively brief period of time.

AGRICULTURE, FORESTRY, AND

Present and future programs on Columbia campus

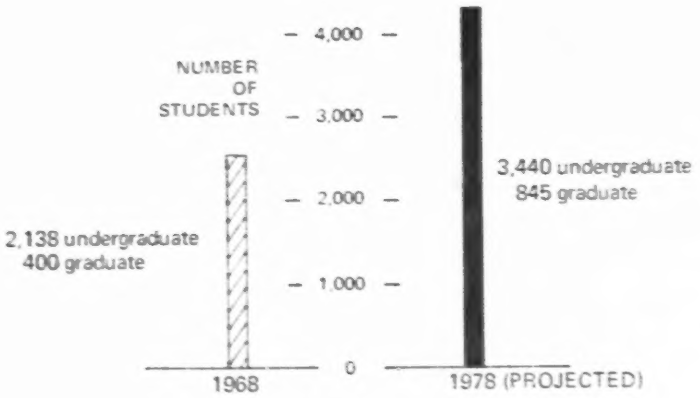
**academic
programs
on
one
campus**

overview

The original central focus of the land-grant institution was on agriculture and the mechanical arts and the population that was supported by these activities. Using the three functions of a university (teaching, research, service), a well-rounded program was developed. Educational programs at the baccalaureate and graduate levels were made available to qualified students seeking preparation for employment in the broad area of agriculture and related industries. Under an "experiment station," sizable research efforts were initiated to study all aspects of agricultural activities. Then, through an "extension service," the land-grant university brought what was known about agriculture directly to those engaged in farming and related pursuits. This trilogy of activities has been largely instrumental in raising agriculture to a level of productivity that far surpasses that in any other nation.

Although in recent years the former primary position of agriculture in Gross National Product and employment has been assumed by other categories, its importance internationally, to the nation and to the State of Missouri, is vital and critical. The quantity, quality, and price of food is, and probably will remain, of serious concern to modern man. Non-food products of farms and forests are strategic materials of society that require careful conservation and intelligent utilization. Consequently, the way in which man cultivates and extracts these products of the soil and the way in which these products are distributed and consumed are still closely associated with the immediate and long-range health and welfare of mankind. Colleges of agriculture are concerned with all of the aspects of this many faceted problem.

HOME ECONOMICS



ENROLLMENT IN AGRICULTURAL PROGRAMS

present program

Agriculture at the University of Missouri includes a College of Agriculture with 15 departments, a School of Forestry, and a School of Home Economics; each offers baccalaureate, master's, and doctoral degree programs. The accompanying table shows present enrollment and degrees granted (1967-68) in these three programs.

ENROLLMENT IN 1967

	Baccalaureate	Master's	Doctoral
Agriculture	1,225	160	136
Forestry	218	18	8
Home Economics	695	76	2
Total	2,138	254	146

DEGREES GRANTED IN 1968

	Baccalaureate	Master's	Doctoral
Agriculture	202	70	21
Forestry	43	3	0
Home Economics	81	12	0
Total	326	85	21

The College of Agriculture and the Schools of Forestry and Home Economics have close and comprehensive relationships with other units of the University, and they have resulted in cooperative degree programs, joint appointments of faculty, and a considerable cross utilization of courses. For years there has been involvement in a variety of regional and federal programs, and the College of Agriculture has extended its activities to foreign countries.

demand

The total demand for trained personnel in agriculture, forestry, and home economics is a composite of a variety of specific needs. These needs originate in farming, forestry, the commodity markets, homes, producers of agricultural equipment, government at all levels, educational institutions, research, and the consuming public. The strengths of these individual demands are constantly varying, and the university must be continually evaluating, anticipating, and accommodating programs to satisfy their needs. For example, it is estimated that by 1978 there will be a national demand for 26,000 new Ph.D.s in Agriculture, while currently there are only 1,000 Ph.D. degrees being conferred each year. The need for trained forest scientists is particularly acute; predicted average demand over the next 10 years is three times the current production.

An indication of the strength of the total demand can be gained from the fact that there are four positions available for each baccalaureate, master's, and doctoral degree awarded each year in agriculture; three openings for each baccalaureate and five for each master's and doctoral degree awarded in forestry; and five positions available for each degree awarded in home economics.

supply

The supply of qualified applicants seeking admission to the University of Missouri has kept pace with the considerable increase in enrollment, so that it is currently possible to accept all qualified applicants. It is estimated that the number of students seeking to enter agriculture, forestry, and home economics in the next 10 years will increase sufficiently to fully utilize the program facilities expected to be made available to them.

projection

Agriculture and the populations supported by it have undergone substantial change since the creation of the land-grant universities, and these institutions of higher education have learned how to adapt to the shifting needs of society. The College of Agriculture is aware that these changes are still occurring and is modifying its program accordingly. From this base of study and forecasting, an estimate has been made of enrollment and degrees to be granted in 1978:

ENROLLMENT IN 1978

	Baccalaureate	Master's	Doctoral
Agriculture	1,900	300	300
Forestry	340	50	20
Home Economics	1,200	150	25
Total	3,440	500	345

DEGREES TO BE GRANTED IN 1978

	Baccalaureate	Master's	Doctoral
Agriculture	400	150	100
Forestry	52	20	5
Home Economics	185	65	5
Total	637	235	110

The major emphasis in program development in the next 10 years will be in the following three areas:

Food Production, Processing, and Marketing.

Obtaining food in satisfactory amounts and at the proper time will continue to be a major concern of man, and the development of manpower and technology to respond realistically to this need must be given top priority.

Life and Environmental Processes.

The development of more basic information and a complete understanding of the application of genetics and biochemistry to plants and animals must be obtained in order to evolve new approaches, which can result in improved species of plants and animals. The mechanism of resistance of plants and animals to disease and insects must be better understood. Waste disposal, water, and air pollution must be evaluated in light of present and evolving agriculture practices and their interrelationship with man. These biological forms will play an important role in accommodating the press for more products.

Social and Institutional Readjustment

As research in all fields expands and new technology is produced and applied, and as man becomes increasingly mobile, sociological problems will mount at an accelerating pace. Hence, attention must be continually focused on the technological stresses imposed upon land communities and institutions and upon marketing arrangements, not alone in rural areas, but in the entire structure of society.

The research program of the College of Agriculture, which is administered through the Agricultural Experiment Station, is and must remain closely intertwined with the education of scientists. The research program is structured so that it is possible to conduct and carry forward fundamental research and at the same time do research which is applied directly to the current problems in Missouri agriculture. Also occurring are developments which make the research program of the College responsive to needs on a regional, national, and international base. The research program of the College of Agriculture will remain viable and responsive to the needs of agriculture.

During the next 10 years, the research program in the College should embrace the assistance and cooperation of scientists in all fields of endeavor. The student graduating with a Ph.D. from the College of Agriculture should be able to respond in a teaching or research role, whether this be in a college of agriculture, private industry, or government service. The scientists participating in the research program will continue to broaden their scope of activities to include programs and problems relating to the international sphere as well as the State of Missouri.

The continuing education program within the College has been a major activity since early 1900. It is anticipated that this will continue to be so in the next decade. The educational programs of agricultural extension will be primarily based and controlled through the departments and schools within the College. Therefore, during the next 10 years, the Agriculture Extension Service will have as its objectives:

- To provide programs which respond to the basic needs of man, whether they be in the farming sector or in the urban-rural fringe.
- To expand the philosophy that a major university and a college of agriculture have an important contribution to make through their extension programs to the continuing education of the people they serve.
- To employ highly trained and qualified teachers and scientists who can respond to the needs of agriculture at all levels.

The University will continue to support only one College of Agriculture, including Forestry and Home Economics, during the next decade. This College is located on the Columbia campus.

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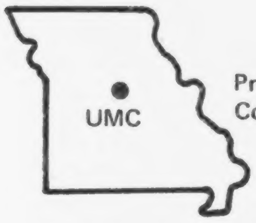
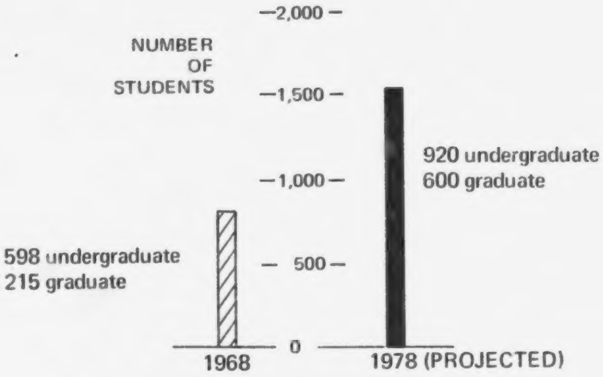


Present and future program on Columbia campus



ENROLLMENT IN JOURNALISM

JOURNALISM

overview

In the increasingly complex world of today, effective communication has become an essential element of all social organization. It is both a science and an art, is the basis of educational methodology, and is an important focus in professional education such as law, medicine, business and public administration, and engineering. Communication through the mass media of newspapers, magazines, radio, and television falls into a category called journalism. The primary function of journalism is the collection and transmission of the world's news to interested populations. The individuals performing this function have an appalling responsibility to society. Consequently, the education and training of the professional journalist becomes a matter of vital concern to the society he is to serve.

The University of Missouri School of Journalism began in 1908 and early in its history established a national reputation for quality instruction. This reputation for quality has continued to the present, and as a result more students are enrolled in this school than in any other school of journalism in the world. It has probably the best journalism library in any institution, trains its students through a newspaper and a television station, and has national and foreign newspaper affiliations that permit a wide variety of journalism student training.

Over the years, the School of Journalism has gained international recognition and many honors.

present program

The School of Journalism now offers programs leading to the Baccalaureate, Master of Arts, and the Doctor of Philosophy degrees. As the professional journalist must have a wide basic knowledge in the arts and sciences, the journalism program includes many course offerings from other schools of the University. Also, areas of specialization are available, so that graduate study may partake of educational programs of other professions, such as medicine and agriculture.

Enrollment in the journalism programs has increased 96 percent during the past three years to a current level of 598 baccalaureate, 200 master's, and 15 doctoral degree students. In 1967 the school awarded 194 baccalaureate degrees, 37 master's degrees, and 3 doctoral degrees.

demand

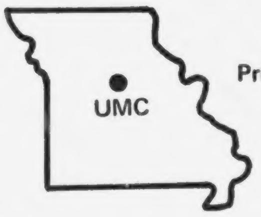
The demand for qualified graduates of schools of journalism appears to be rising steadily as more segments of the economy become aware of the contributions in communication that can be made by persons with this kind of training. The reputation of the University of Missouri School of Journalism is so high nationally that demand for its graduates surpasses the annual output by a considerable margin. There is reason to expect this demand to continue into the foreseeable future.

supply

Because of its visibility at the national level, the School of Journalism attracts top-level students from a wide geographic area. These students are applying in increasing numbers, and there is strong likelihood a point will soon be reached where facilities cannot accommodate all who apply. The University will then have to decide whether to increase its educational facilities or to raise its already stringent admission requirements.

projection

Because of the long-standing reputation of the School of Journalism and the key position which it occupies in the state and in the nation, the University of Missouri feels it should continue to accept as large a percentage of qualified applicants as possible and is making plans to accommodate by 1978 an enrollment of 920 baccalaureate and 600 graduate students. This would provide in 1978 approximately 550 baccalaureate degrees, 220 master's degrees, and 15 doctoral awards. The School of Journalism on the Columbia campus is the only journalism school the University will support during the next decade.



Present program on Columbia campus

LIBRARY AND INFORMATION SCIENCE

overview

With the recent appearance of the computer, there came an entirely new approach to data handling. There is good reason for believing that a revolution is in the making for the storage, retrieval, and transfer of information, and many are speaking of a "science of information." Through the ages, man's knowledge has been stored in books placed in libraries, and retrieval has been accomplished by reading those books. At some point in the future, the storage and retrieval may be so radically changed that the current library will have disappeared. If the change occurs rapidly enough, it will accommodate the knowledge explosion that is now in process.

To meet some of the urgent demands of this information-handling revolution, the University of Missouri established in 1966 a School of Library and Information Science.

present program

The current educational program of the new School of Library and Information Science is the initial stage of a planned development of considerable importance. In 1967 the School awarded six baccalaureate and one master's degrees, and the present enrollment is 60 in the baccalaureate and 58 in the master's program.

demand

The demand for well-trained librarians has exceeded the supply for a number of years. With the anticipated changes in information handling, there will undoubtedly be an added need for this type of person now in extremely short supply. The size and exact nature of this demand cannot be estimated with precision at present.

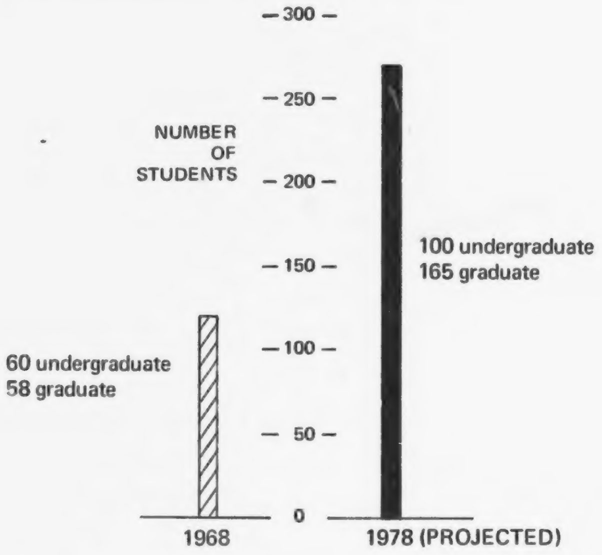
supply

The supply of persons well trained in information science is almost non-existent at present. However, students are beginning to be interested in the area of study, and when educational facilities are expanded in accord with library demand, it is certain that the number seeking admission will rise accordingly.

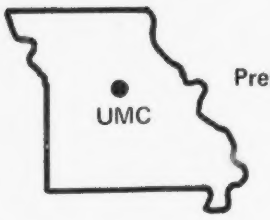
projection

Although a portion of the library demand will continue to be met by baccalaureate graduates, the major development is anticipated to be at the graduate study level. To meet this expected need, the doctoral program will be developed and offered, hopefully by 1972. By 1978 the School expects enrollment in the baccalaureate program to be 100, with an additional 150 in the master's and 15 in the doctoral programs.

At present, the University has but one School of Library and Information Science, and it is located on the Columbia campus. Because of the interdisciplinary nature of information science, this part of the School will continue to be restricted to the Columbia campus. However, because of the local demand in the two urban areas for library science programs, their support by the University on the Kansas City and St. Louis campuses will probably be justified during the next decade.



ENROLLMENT IN LIBRARY SCIENCE PROGRAM



Present program on Columbia campus

SOCIAL AND COMMUNITY SERVICES

overview

The increasing population and the concentration of that population into urban conglomerations in a technologically advanced society has made life more difficult for large numbers of citizens, who by accident of birth or economic position are unable to participate fully in an education-oriented culture. With this increasing complexity of social organization and the importance attached to satisfactory adjustment to those complexities, the demand for services of the trained professional has expanded enormously. Professionally trained caseworkers, family counsellors, group workers, community organizers, institutional administrators, recreation leaders, facility planners, and community development specialists can contribute much to improved functioning of the social complex. To accommodate this demand the University of Missouri must provide training of exceptional quality and attract applicants with the capabilities to benefit from this instruction.

present program

Enrollment in approved degree programs is currently (1967-68) as follows:

	Bachelor's	Master's
School of Social Work	60	100
Recreation & Park Administration	34	10
Regional & Community Affairs	–	45
Total	94	155

demand

Social Work

The *Occupational Outlook Handbook* estimates that 15,000 new social workers will be needed nationally each year for the foreseeable future. Other sources, such as *Manpower in Social Welfare* and *Closing the Gap,* agree with this estimate. However, in 1967 the 70 schools of social work in the nation produced only slightly more than 4,000 graduates. The number of these baccalaureate graduates now majoring in graduate social work is not known. Reliable, precise demand figures for the State of Missouri do not exist. However, statewide demand for social workers in the health area was recently estimated from a study of one section of the state. The extrapolation demonstrated an annual demand for about 200 baccalaureate graduates and about 90 Master of Social Work graduates. Recent experience suggests that about 65 percent of M.S.W. graduates are in health employment. Using this ratio, a total demand for social work graduates would be in the neighborhood of 300 baccalaureate and 140 M.S.W. graduates per year.

Recreation and Park Administration

Recently enacted legislation making federal grants available to states and cities for open space and park areas has stimulated interest in professional recreation leadership and park administration. In addition, many institutions–such as general and mental hospitals, correctional institutions, and youth-serving agencies–are increasing their demands for recreationally trained staff. The National Recreation and Park Association recently completed a *Manpower Supply/ Demand Study,* which estimated a loss of 54,000 personnel from the field during the next 10 years and a projected addition of 40,250, or a net loss of 13,750. The report anticipates that, if this net loss is added to the projected increase in demand of 235,000, there will be a total deficit of 248,750 trained recreation and park personnel during the next 10 years. Translated into State of Missouri demand, it would appear that if the University of Missouri graduates 100 baccalaureate and 50 advanced degree graduates each year for the next decade, it would satisfy about 25 percent of the state's needs.

Regional and Community Affairs

The demand for professionally trained community development personnel is so large there appears small likelihood it will be met over the next 10 years. To illustrate the source of the demand, there are being organized throughout the United States more than 600 regional or area planning commissions, and each region has a need for at least one professional community developer. Every state extension service has openings for one or more community resource developers at the state level and numerous positions at area or county levels. The demand for training foreign students under federal sponsorship continues to increase, and a special diploma program has been established for this purpose.

supply

Social Work

In 1966 St. Louis University, Washington University, and the University of Missouri had 431 students enrolled in graduate social work programs and gave degrees to 173 students. However, only 190 students from the State of Missouri were enrolled in M.S.W. programs in any university in the United States. Thus, the three schools of social work in Missouri are producing five percent of the nation's graduates in social work, from only two percent of the total population of the United States. The University of Missouri School of Social and Community Services admits each year all of the qualified applicants from Missouri, but this represents only 60 percent of the total admitted. As only about 40 percent of those receiving the M.S.W. from the University of Missouri remain in Missouri after graduation, a considerable drain of trained personnel occurs. To retain an adequate supply in Missouri, it would appear desirable to secure more qualified applicants from the resident population of Missouri. Placement of educational programs in the two metropolitan areas of the state may accomplish this objective.

Recreation and Park Administration

Only one other institution of higher education in Missouri offers a baccalaureate area of specialization in recreation. Also, between the Missouri River and California, there are but two institutions with more faculty members in this field than are at the University of Missouri. Each year during the next decade this new department intends to increase its output by 2.5 percent.

Regional and Community Affairs

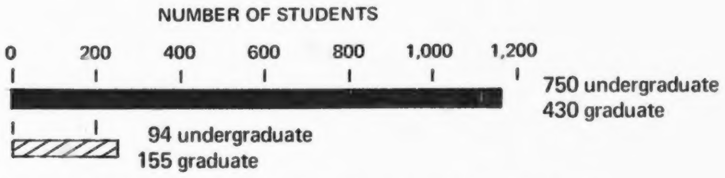
Of the two graduate programs in this discipline in the United States, that of the University of Missouri is the larger, and 14 master's degrees were awarded at the University in 1968. Based upon current student inquiries and the availability of student support, a steady increase to 50 or 75 master's degree candidates per year during the next 10 years appears both likely and feasible.

projection

Expansion during the next 10 years of the social work and community services educational programs of the University of Missouri appears warranted by the current projected demand and supply relationships. By 1978 it is anticipated there will be enrolled in baccalaureate programs a total of 750 students, in master's programs 400 students, and 30 graduate students working toward the doctor's degree. If this expansion is accomplished by a greater interest from qualified Missouri applicants, a sizable contribution will begin to be made toward the social work needs in Missouri.

In projecting for the decade ahead, it is clear that a vigorous program of action research, involving the adaptation of basic knowledge to specific community or social problems, will be necessary to update teaching material and personnel to insure an instructional staff that is in tune with the real problems of communities and their residents in a rapidly changing world.

The University is now supporting one School of Social Work and it is located on the Columbia campus. Because of the large urban populations in Kansas City and St. Louis, program demand may justify the placement of a social work school on one or both urban campuses during the next 10 years.



ENROLLMENT IN SOCIAL AND COMMUNITY SERVICES–
1968 AND 1978 (PROJECTED)

appendix

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED BY THE COLUMBIA CAMPUS

Accountancy—M.A., M.S., Ph.D.
Agricultural Chemistry—M.S., Ph.D.
Agricultural Economics—M.S., Ph.D.
Agricultural Engineering—M.S., Ph.D.
Agriculture—B.S.
American Civilization—M.A., Ph.D.
Anatomy—M.A., M.S., Ph.D.
Animal Husbandry—M.S., Ph.D.
Anthropology—M.A., Ph.D.
Art—M.A.
Art History and Archaeology—M.A., Ph.D.
Arts and Science—A.B. (See page 34)
Atmospheric Science—M.S., Ph.D.
Biochemistry—M.S., Ph.D.
Botany—M.A., M.S.T., M.S., Ph.D.
Business Administration—B.S., M.B.A., Ph.D.
Chemical Engineering—M.S., Ph.D.
Chemistry—M.A., M.S.T., Ph.D.
Civil Engineering—M.S., Ph.D.
Classical Languages—M.A., M.A.T.
Classics & Classical Archaeology—Ph.D.
Community Development—M.S.
Community Health & Medical Practice—M.S.P.H.
Dairy Husbandry—M.S., Ph.D.
Economics—M.A., M.S.T., Ph.D.
Education—B.S., M.Ed., M.A., Ed.D., Ph.D.
Electrical Engineering—M.S., Ph.D.
Engineering—B.S.
English—M.A., Ph.D.
Entomology—M.S., Ph.D.
Extension Education—M.S.
Field Crops—M.S., Ph.D.
Forestry—B.S., M.S., Ph.D.
Genetics—M.S., Ph.D.
Geography—M.A.
Geology—M.A., M.S.T., Ph.D.
Germanic & Slavic Languages—M.A.
History—M.A., Ph.D.
Home Economics—A.B., B.S., M.A., M.S., Ph.D.
Horticulture—M.S., Ph.D.
Industrial Engineering—M.S.
Inhalation Therapy—B.S.
Journalism—B.J., M.A., Ph.D.
Law—J.D.
Library Science—A.B., M.S.
Linguistics—M.A.
Mathematics—M.A., M.S., M.S.T., Ph.D.
Mechanical & Aerospace Engineering—M.S., Ph.D.
Medical Science—B.M.S.
Medicine—M.D.
Microbiology—M.S., M.A., Ph.D.
Music—B.M., M.A., M.Mus.
Nuclear Engineering—M.S., Ph.D.
Nursing—B.S., M.S.
Nutrition—Ph.D.
Occupational Therapy—B.S.
*Pathology—M.A., M.S., Ph.D.
**Pharmacology—M.A., Ph.D.
Philosophy—M.A., Ph.D.
Physical Therapy—B.S.
Physics & Astronomy—M.S., M.S.T., Ph.D.
Physiology—M.A., Ph.D.
Political Science—M.S., M.A., Ph.D.
Poultry Husbandry—M.S., Ph.D.
Psychology—M.S., M.A., Ph.D.
Public Administration—B.S., M.S.
Public Health—M.S.P.H.
Radiologic Technology—B.S.
Recreation & Park Administration—B.S., M.S.
Regional & Community Affairs—M.S.
Romance Languages—M.A., M.A.T., Ph.D.
Sanitary Science—M.S.
Science—B.S.
Social Work—M.S.S.W.
Sociology—M.A., Ph.D.
Soils—M.S., Ph.D.
Speech—M.A., Ph.D.
Statistics—M.A., Ph.D.
**Veterinary Anatomy—M.S., Ph.D.
Veterinary Medicine—D.V.M.
Veterinary Medicine & Surgery—M.S.
**Veterinary Microbiology—M.S., Ph.D.
Veterinary Pathology—M.S.
**Veterinary Physiology—M.S., Ph.D.
Zoology—M.A., M.S.T., Ph.D.

*Ph.D. Area Degrees—College of Agriculture, Schools of Medicine and Veterinary Medicine.

**Ph.D. Area Degrees—Schools of Medicine and Veterinary Medicine

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED BY THE KANSAS CITY CAMPUS

American Culture–B.A.
Art–B.A., M.A.
Art History–B.A.
Biology–B.S., B.A., M.S., M.A.
Business Administration–B.B.A., M.B.A.
Chemistry–B.S., B.A., M.S., M.A., Ph.D.
Dentistry (Anatomy, Biochemistry, Microbiology, Pedodontics, Periodontics, Prosthodontics, Oral Pathology, Oral Surgery)–B.S., D.D.S., M.S.
Dental Hygiene–B.S.
Economics–B.A., M.A.
Education–B.A., M.A., Ed.S., Ph.D.
English Language and Literature–B.A., M.A.
Foreign Languages and Literature–B.A.
General Education (Social Sciences)–Ph.D.
General Engineering–B.S.
Geology and Geography–B.S., B.A.
Health and Physical Education–B.S., B.A.
History–B.A., M.A.
Law–J.D., LL.M.
Mathematics–B.S., B.A., M.S., M.A., Ph.D.
Medical Technology–B.S.
Music–B.M., B.A., B.M.Ed., M.A., M.M., M.Mus.Ed., D.M.A.
Pharmacy–B.S., M.S., Ph.D.
Philosophy and Religion–B.A.
Physics–B.S., B.A., M.S.
Political Science–B.A., M.S., M.A.
Psychology–B.A., M.A.
Public Address–M.A.
Public Administration–M.P.A.
Romance Languages–M.A.
Social Psychology–M.A.
Sociology–B.A., M.A.
Speech and Theatre–B.A., M.A.

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED BY THE ROLLA CAMPUS

Aerospace Engineering–B.S., M.S.*
Applied Mathematics–B.S., M.S.
Ceramic Engineering–B.S., M.S., Ph.D.
Chemical Engineering–B.S., M.S., Ph.D.
Chemistry–B.S., M.S., Ph.D.
Civil Engineering–B.S., M.S.,* Ph.D.
Computer Science–B.S., M.S.
Economics–B.A.
Electrical Engineering–B.S., M.S.,* Ph.D.
Energy Conversion–M.S.*
Engineering Administration–M.S.*
Engineering Management–B.S.
Engineering Mechanics–B.S., M.S.*
Engineering Physics–Ph.D.
English–B.A.
Geological Engineering–B.S., M.S., Ph.D.
Geology–B.S., M.S., Ph.D.
Geophysical Engineering–M.S., Ph.D.
Geophysics–B.S., M.S., Ph.D.
History–B.A.
Mathematics–M.S.T., Ph.D.
Mechanical Engineering–B.S., M.S.,* Ph.D.
Metallurgical Engineering–B.S., M.S.,* Ph.D.
Mining Engineering–B.S., M.S., Ph.D.
Nuclear Engineering–B.S., M.S., Ph.D.
Petroleum Engineering–B.S., M.S., Ph.D.
Physical Sciences–M.S.T.
Physics–B.S., M.S., Ph.D.
Propulsion and Space Engineering–M.S.*
Psychology–B.A.

*Also offered at the St. Louis Graduate Engineering Center.

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED BY THE ST. LOUIS CAMPUS

Administration of Justice–B.S.
Biology–B.A.
Business Administration–B.S., M.B.A.
Chemistry–B.A., B.S.
Economics–B.A., M.A.
Education–B.S.Ed., M.Ed.
English–B.A.
French–B.A.
German–B.A.
History–B.A., M.A.
Mathematics–B.A.
Music–B.A.
Philosophy–B.A.
Physics–B.A., B.S.
Political Science–B.A., M.A.
Psychology–B.A.
Sociology–B.A., M.A.
Spanish–B.A.